

DC/DC

E

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Россия (495)268-04-70

Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Киргизия (996)312-96-26-47

Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Казахстан (7172)727-132

Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

E30ZW

geregelter DC/DC Wandler, Weitbereichseingang 2:1
regulated DC/DC converter, wide range input 2:1



Weitbereichseingang 2:1
PI-Eingangsfiler
Wirkungsgrad < 85%
Dauerkurzschlussfest
Galvanische Trennung 500VDC
EN60950
Allseitige Schirmung
Dual/Tripel Version:
Mindestlast ca. 10%

Wide range input 2:1
PI-Input filter
Efficiency < 85%
Short circuit protection
Input/output isolation 500VDC
EN60950.
Six-sided shield
Dual/Triple Version:
Minimal load ca. 10%

Option: 

Type	Input voltage	Output voltage	Output Current	Input current		Efficiency %	Cat. Nr.
				no load	full load		
E30ZW12R5	9-18VDC	5VDC	5000mA	30mA	2675mA	78	115200
E30ZW12R12	9-18VDC	12VDC	2500mA	30mA	3050mA	82	115201
E30ZW12R15	9-18VDC	15VDC	2000mA	30mA	3050mA	82	115202
E30ZW12R5-5	9-18VDC	±5VDC	±2500mA	35mA	2675mA	78	115203
E30ZW12R12-12	9-18VDC	±12VDC	±1250mA	35mA	3050mA	82	115204
E30ZW12R15-15	9-18VDC	±15VDC	±1000mA	35mA	3050mA	82	115205
E30ZW12R5-12-12	9-18VDC	5/±12VDC	3500/±310mA	35mA	2640mA	79	115206
E30ZW12R5-15-15	9-18VDC	5/±15VDC	3500/±250mA	35mA	2640mA	79	115207
E30ZW12R3,3	9-18VDC	3,3VDC	5000mA	30mA	1860mA	74	115208
E30ZW24R5	18-36VDC	5VDC	5000mA	30mA	1336mA	79	115209
E30ZW24R12	18-36VDC	12VDC	2500mA	30mA	1525mA	82	115210
E30ZW24R15	18-36VDC	15VDC	2000mA	30mA	1525mA	82	115211
E30ZW24R5-5	18-36VDC	±5VDC	±2500mA	30mA	1336mA	79	115212
E30ZW24R12-12	18-36VDC	±12VDC	±1250mA	30mA	1470mA	85	115213
E30ZW24R15-15	18-36VDC	±15VDC	±1000mA	30mA	1470mA	85	115214
E30ZW24R5-12-12	18-36VDC	5/±12VDC	3500/±310mA	30mA	1320mA	80	115215
E30ZW24R5-15-15	18-36VDC	5/±15VDC	3500/±250mA	30mA	1320mA	80	115216
E30ZW24R3,3	18-36VDC	3,3VDC	5000mA	30mA	920mA	75	115217
E30ZW48R5	36-72VDC	5VDC	5000mA	20mA	660mA	79	115218
E30ZW48R12	36-72VDC	12VDC	2500mA	20mA	765mA	82	115219
E30ZW48R15	36-72VDC	15VDC	2000mA	20mA	765mA	82	115220
E30ZW48R5-5	36-72VDC	±5VDC	±2500mA	25mA	660mA	79	115221
E30ZW48R12-12	36-72VDC	±12VDC	±1250mA	25mA	735mA	85	115222
E30ZW48R15-15	36-72VDC	±15VDC	±1000mA	25mA	735mA	85	115223
E30ZW48R5-12-12	36-72VDC	5/±12VDC	3500/±310mA	25mA	655mA	80	115224
E30ZW48R5-15-15	36-72VDC	5/±15VDC	3500/±250mA	25mA	655mA	80	115225
E30ZW48R3,3	36-72VDC	3,3VDC	5000mA	20mA	460mA	75	115226

DC/DC Wandler
DC/DC converter

E30ZW

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit single <i>Output accuracy single</i>	±2% max.
Ausgangsgenauigkeit dual <i>Output accuracy dual</i>	+Out: ±2% max. -Out: ±3% max
Ausgangsgenauigkeit triple <i>Output accuracy triple</i>	5V: ±2% max. 12V/15V: ±5% max.
Ausgangsspannung einstellbar <i>Output voltage adjustable</i>	±10% über externes Potentiometer ±10% via external trimpot
Regelabweichung bei Laständerung <i>Load regulation</i>	Single/dual: ±1,0%max., triple: ±5,0%max., gemessen von Volllast zu 1/4 Last Single/dual: ±1,0%max., triple: ±5,0%max., measured from full load to 1/4 load
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	Single/dual: ±0,2%max, triple: ±1,0% max, gemessen von Umax auf Umin Single/dual: ±0,2%max, triple: ±1,0% max, measured from high line to low line
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	10mVRMS max. (75mVpp max.)
Mindest Last <i>Minimal load</i>	Dual/Triple Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +60°C ohne Derating / 60°C bis 100°C mit Derating (-2,5%/°C) -25°C to +60°C without derating / 60°C to 100°C with derating (-2,5%/°C)
Lagertemperatur <i>Storage temperature</i>	-55°C~+105°C
Gehäusetemperatur <i>Case temperature</i>	100°C max.
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion Free air-convection
Elektrische Sicherheit <i>Electrical safety</i>	EN60950
Filterung EMI filter	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	300kHz min.
Galvanische Trennung <i>Isolation voltage</i>	500VDC
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest Permanent short circuit protected

Abmessungen

Dimensions

Gehäuse

Case

Gewicht

Weight

Montagezubehör auf Anfrage

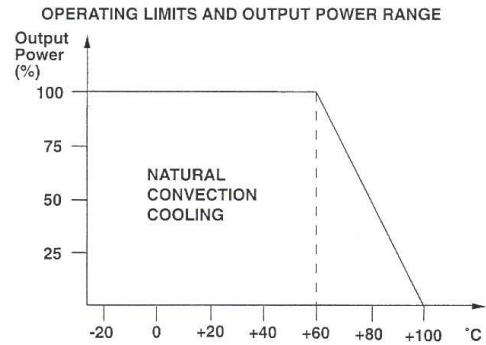
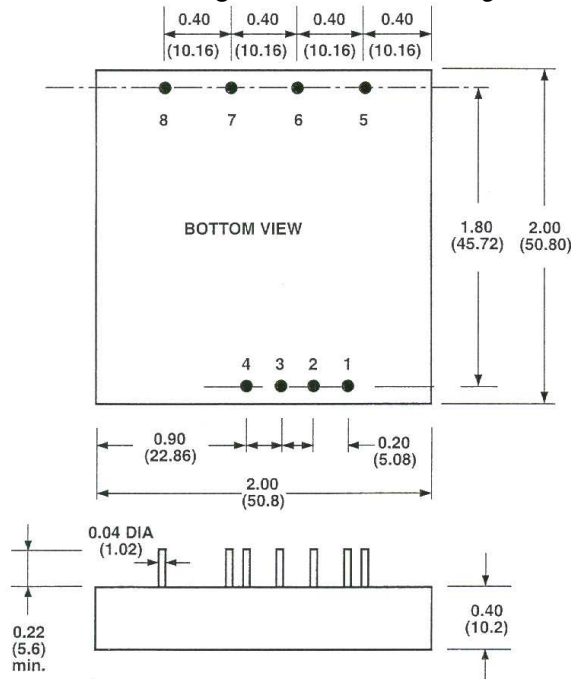
50,8 x 50,8 x 10,2mm (BxTxH)

Kupfer, schwarz, Bodenplatte Isolierstoff

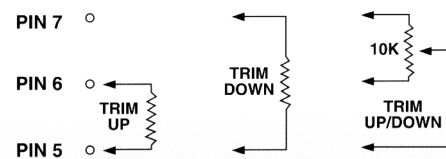
Copper, black, non conductive baseplate

65 g

Mounting accessoires on request



Output Trim:



Pin Belegung / Pin assignment

	1	2	3	4	5	6	7	8
single	Remote on/off	NP	-Vin	+Vin	TRIM	-Vout	+Vout	NP
dual	Remote on/off	NP	-Vin	+Vin	TRIM	-Vout	GND	+Vout
triple	Remote on/off	NP	-Vin	+Vin	-Aux.Out	GND	+5V	+Aux.Out

NP=no pin

Triple Output Loading Table

Output (pin no.)	Voltage	Amperes	
		min	nom.
7	5	0,5	3,5
8+5	+12 oder -12	0,1	0,31
8+5	+15 oder -15	0,1	0,25

Remote on/ off control

(Remote off: Pin 1 mit Pin 3 verbinden)

(remote off: connect pin 1 with pin 3)

Logic Compatibility	CMOS or open collector TTL
EC-on	>5,5VDC or open circuit
EC-off	<1,8mA
Shutdown idle current	10 mA
Input resistance	100K ohms (Ein 0VDC to 9VDC)
Control common	Referenced to input minus

DC/DC Wandler
DC/DC converter

E30ZW

E30EU

DC/DC Wandler, Weitbereichseingang 4:1
DC/DC converter, wide range input 4:1



Weitbereichseingang 4:1
Ausgangsspannung einstellbar $\pm 10\%$
PI-Eingangsfiler
Galvanische Trennung 500VDC min.
Fernabschaltung
Dauerkurzschlussfest
Dual/Tripel: Mindestlast ca. 10%

Wide range input 4:1
Output voltage adjustable $\pm 10\%$
PI-Input filter
Input/output isolation 500VDC min.
Remote on/off
Continuous short circuit protection
Dual/Triple Minimal load: ca. 10%

Type	Input voltage	Output voltage	Output current	Input current		Efficiency %	Cat. No.
				no load	full load		
E30EU24R5	9-36VDC	5VDC	5000mA	20mA	1350mA	77	115130
E30EU24R12	9-36VDC	12VDC	2500mA	20mA	1560mA	80	115131
E30EU24R15	9-36VDC	15VDC	2000mA	20mA	1560mA	80	115132
E30EU24R12-12	9-36VDC	± 12 VDC	± 1250 mA	25mA	1560mA	80	115133
E30EU24R15-15	9-36VDC	± 15 VDC	± 1000 mA	25mA	1560mA	80	115134
E30EU24R5-12-12	9-36VDC	5/ ± 12 VDC	3000/ ± 625 mA	25mA	1650mA	76	115135
E30EU24R5-15-15	9-36VDC	5/ ± 15 VDC	3000/ ± 500 mA	25mA	1650mA	76	115136
E30EU24R5-12-5	9-36VDC	5/12/5VDC	3000/600/1000mA	25mA	1450mA	78	115137
E30EU48R5	18-72VDC	5VDC	5000mA	15mA	670mA	78	115138
E30EU48R12	18-72VDC	12VDC	2500mA	15mA	770mA	81	115139
E30EU48R15	18-72VDC	15VDC	2000mA	15mA	770mA	81	115140
E30EU48R12-12	18-72VDC	± 12 VDC	± 1250 mA	20mA	750mA	84	115141
E30EU48R15-15	18-72VDC	± 15 VDC	± 1000 mA	20mA	750mA	84	115142
E30EU48R5-12-12	18-72VDC	5/ ± 12 VDC	3000/ ± 625 mA	20mA	790mA	79	115143
E30EU48R5-15-15	18-72VDC	5/ ± 15 VDC	3000/ ± 500 mA	20mA	780mA	80	115144
E30EU48R5-12-5	18-72VDC	5/12/5VDC	3000/600/1000mA	20mA	725mA	78	115145

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit single <i>Output accuracy single</i>	±1% max.
Ausgangsgenauigkeit dual <i>Output accuracy dual</i>	+out: ±1% max. -out: ±3% max
Regelabweichung bei Laständerung <i>Load regulation</i>	Single/dual: ±1,0%max., triple: ±5,0%max.
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	Single/dual: ±0,2%max, triple: ±1,0% max
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	75mVpp max., 10mVRMS max.
Mindest Last <i>Minimal load</i>	Dual/Tripel Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating 71°C bis 100°C mit Derating (-3.5%/°C) -25°C to +71°C without derating 71°C to 100°C with derating (-3.5%/°C)
Lagertemperatur <i>Storage temperature</i>	-55°C~+105°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion Free air-convection
Gehäusetemperatur <i>Case temperature</i>	100°C max.
Filterung <i>EMI filter</i>	PI-Filter
Externe Sicherung <i>Extern fuse</i>	UE 9-36VDC: 5A UE 18-72VDC: 2,5A
Fernabschaltung <i>Remote on/off</i>	Pin 8 mit Pin 2 (-In) verbinden Connect Pin 8 with Pin 2 (-In)
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	200kHz min.
Prüfspannung Eingang/Ausgang <i>Isolation voltage input / output</i>	500VDC min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest Permanent short circuit protected

Wirkungsgrad

Efficiency

Abmessungen

Dimensions

Gehäuse

Case

Gewicht

Weight

Montagezubehör auf Anfrage

Mounting accessories on demand

siehe Tabelle

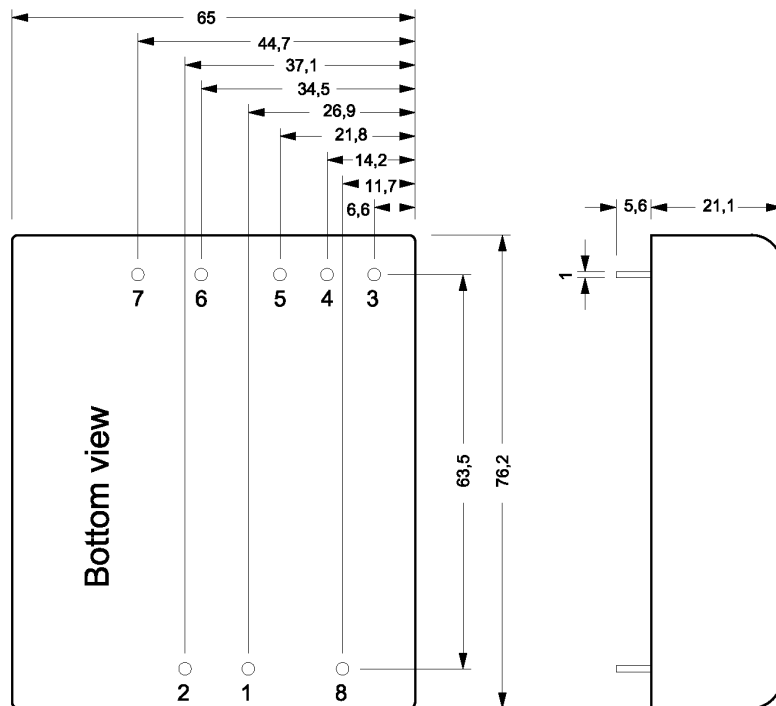
see table

65 x 76,2 x 21,1mm (BxTxH)

Kupfer, schwarz, Bodenplatte Isolierstoff

Copper, black, non-conductive baseplate

41g



Pin Belegung/ pin assignment

	1	2	3	4	5	6	7	8
single	+In	-In	+Sense	Trim	-Sense	+Out	-Out	Remote on/off
dual	+In	-In	+Out	GND	-Out	NP	NP	
triple	+In	-In	+12/15V	GND	-5/12/15V	+5V	NP	

NP = no pin

DC/DC Wandler
DC/DC converter

E30EU

Remote ON/OFF Control

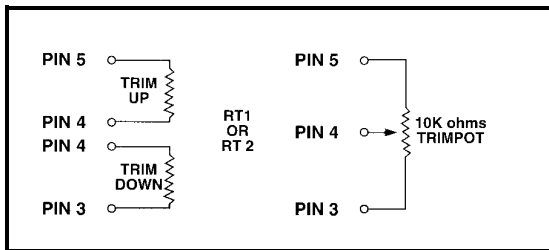
Optional: Die E30EU-Serie kann elektronisch durch Remote ON/OFF ein- u. ausgeschaltet werden.

Die E30EU-Serie wird mit „positiv logic“ betrieben, d.h. der DC/DC Wandler ist in Betrieb, so lange der PIN Remote ON/OFF nicht extern beschaltet wird.

Option: The E30EU-series allows the user to switch the module on and off electronically with remote on/off feature.

The E30EU-series is available with "positiv logic", means the DC/DC converter is in operation as long as the PIN Remote ON/OFF is not connected to GND via an external circuit.

Output Trim



Logic Table:

Positive Logic	State PIN8
REMOTE ON	Open
REMOTE OFF	GND (connected to PIN2 e.g. via external Transistor – see scematic)

Anmerkung: Im Zustand REMOTE ON bleibt der PIN8 in jedem Fall unbeschaltet

(Achtung! In keinem Fall Spannung einspeisen).

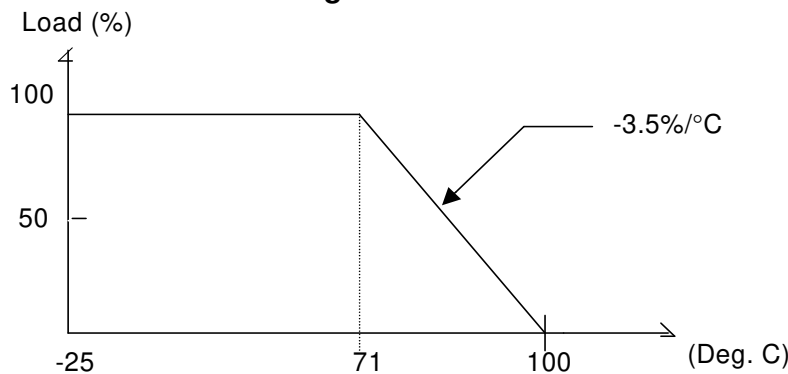
Attention: In operation state REMOTE ON PIN8 is in any case open

(Attention! In no case connect to any input voltage).

Triple Output Loading Table

Output (pin no.)	Voltage	Amperes	
		min	nom.
6	+5	0,25	3,0
3&5	±12	0,10	0,625
3&5	±15	0,10	0,5
3&5	+12 / -5	0,10/0,10	0,6/1,0

Derating Curve :



a. Operating Temperature : -25°C to 71°C ---> without derating

b. Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E20UW

geregelter DC/DC Wandler; Weitbereichseingang 4:1
regulated DC/DC converter; wide range input 4:1



Option: 

Weitbereichseingang 4:1
PI-Eingangsfiler
EN55011 Klasse A
Wirkungsgrad < 84%
Dauerkurzschlussfest
Galvanische Trennung 1500VDC min.
Dual Version: Mindestlast ca. 10%
Remote On/Off
Ausgang ± 10% einstellbar

Wide range input 4:1
PI-Input filter
EN55011 class A
Efficiency < 84%
Continuous short circuit protection
Input/output isolation 1500VDC min.
Dual version: Minimal load app. 10%
Remote on/off
Output ± 10% adjustable

Type	Input voltage	Output voltage	Output current	Input current		Efficiency	Cat. No.
				no load	full load		
single							
E20UW24R3,3	9-36VDC	3,3VDC	4000mA	15mA	705mA	78	115251
E20UW24R5	9-36VDC	5VDC	4000mA	15mA	1029mA	81	115252
E20UW24R12	9-36VDC	12VDC	1670mA	15mA	1006mA	83	115253
E20UW24R15	9-36VDC	15VDC	1330mA	15mA	1004mA	83	115254
E20UW48R3,3	18-72VDC	3,3VDC	4000mA	10mA	353mA	78	115255
E20UW48R5	18-72VDC	5VDC	4000mA	10mA	508mA	82	115256
E20UW48R12	18-72VDC	12VDC	1670mA	10mA	497mA	84	115257
E20UW48R15	18-72VDC	15VDC	1330mA	10mA	496mA	84	115258
dual							
E20UW24R12-12	9-36VDC	±12VDC	±833mA	20mA	1004mA	83	115259
E20UW24R15-15	9-36VDC	±15VDC	±666mA	20mA	1004mA	83	115260
E20UW24R5-5	9-36VDC	±5VDC	±2000mA	20mA	1004mA	83	115261
E20UW48R12-12	18-72VDC	±12VDC	±833mA	15mA	496mA	84	115262
E20UW48R15-15	18-72VDC	±15VDC	±666mA	15mA	496mA	84	115263
E20UW48R5-5	18-72VDC	±5VDC	±2000mA	15mA	496mA	84	115264

DC/DC Wandler
DC/DC converter

E20UW

1. Eingang / Input

Eingangsspannung <i>Input voltage range</i>	siehe Tabelle <i>see table</i>
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2. Ausgang / Output

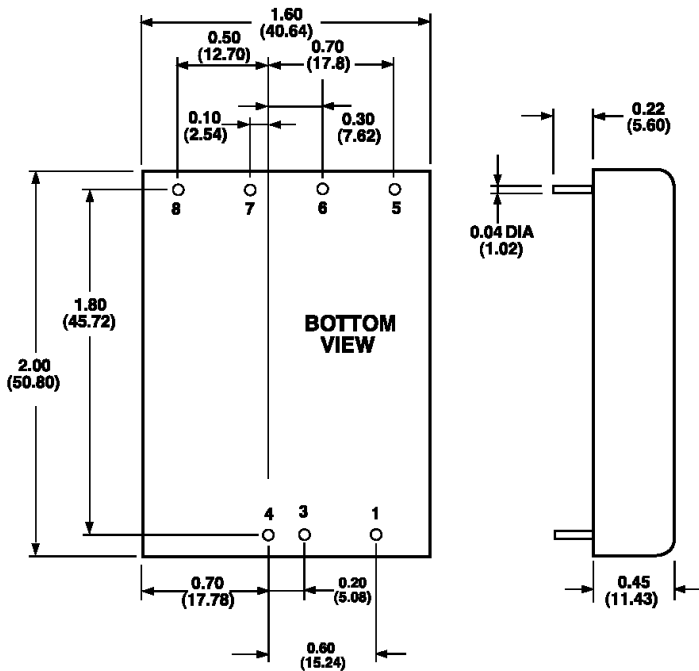
Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit single <i>Output accuracy single</i>	±1% max
Ausgangsgenauigkeit dual <i>Output accuracy dual</i>	±1% max.
Ausgangsbalance bei dual Version und Vollast <i>Voltage balance, dual output at full load</i>	±1% max.
Ausgangsspannung einstellbar <i>Output voltage adjustable</i>	±10% über externes Potentiometer <i>±10% via external trimpot</i>
Regelabweichung bei Laständerung <i>Load regulation</i>	Single/dual: ±0,5%max.
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	Single/dual: ±0,5%max.
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	75mVpp max.
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

3. Umgebung / Environment

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C ~+71°C (Derating: 60°C linear zu Null bei 100°C) <i>-25°C ~+71°C (Derating: 60°C linear to zero at 100°C)</i>
Lagertemperatur <i>Storage temperature</i>	-55°C~+105°C
Gehäusetemperatur <i>Case temperature</i>	100°C max.
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10⁸Ω
Schaltfrequenz <i>Switching frequency</i>	300kHz min.
Galvanische Trennung <i>Insulation voltage</i>	1500VDC, min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest <i>continuous short circuit protected</i>
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	50,8 x 40,64x 11,43mm (BxTxH)

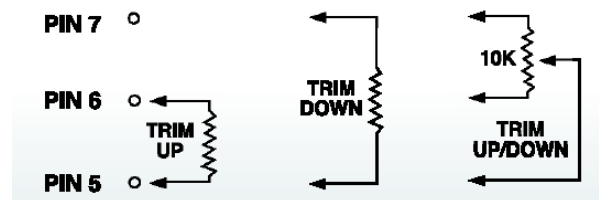
Gehäuse
Case
Gewicht / weight

Kupfer, schwarz, Bodenplatte Isolierstoff
Copper, black, non conductive baseplate
53 g



Output Trim:

Output may optional be externally trimmed ($\pm 10\%$) with a fixed resistor or an external trimpoti as shown.



Remote on/off control:

Logic CompatibilityCMOS or open collector TTL
EC-ON.....>+5,5VDC or Open Circuit
EC-OFF.....< 1.8 VDC
Control Common.....Referenced to Input Minus

Pin Belegung / Pin assignment

	1	3	4	5	6	7	8
single	on/off Control	-Vin	+Vin	TRIM	-Vout	+Vout	NP
dual	on/off Control	-Vin	+Vin	TRIM	-Vout	Common	+Vout

NP=no pin

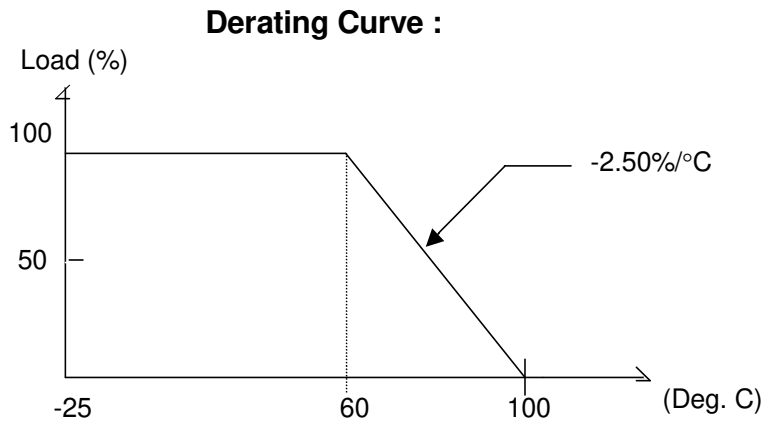
DC/DC Wandler
DC/DC converter

E20UW

Derating:

* Natural Convection 20ft./min.(0.1m/s)

* Case temperature limit to 100°C max.



- Operating Temperature : -25°C to 71°C ---> without derating
- Operating Temperature : 60°C to 100°C ---> derating (-2.50%/°C)

E15ZW

DC/DC Converter

regulated DC/DC converter; wide range input 2:1



- Wide range input 2:1
- PI-Input filter
- Continuous Short Circuit Protection
- Input/output isolation 500VDC min.
- Noise suppression EN55011-A
- Dual version
- No minimum load required

Abbildung ähnlich / device similar to figure

E15ZW-derivate table

Type	Input voltage	Output voltage	Output current	Cat. No.
	Nom. (Tol.)	Nom.	Nom.	
E15ZW24R12-12	24 VDC (18 - 36 VDC)	± 12 VDC	± 625 mA	112320

1 Input

Input voltage range		see E15ZW-derivate table (valid for continuous operation)
No-load current consumption	25 mA	-
Input current at full load	755 mA	-
Input filter	PI - filter	-

2 Output

Output voltage U_{nom}		see E15ZW-derivate table
Output accuracy	$\pm 1\%$	-
Voltage balance	$\pm 1\%$	-
Load regulation tolerance (25% - 100%)	$\pm 1\%$	-
Input regulation tolerance (18 V - 36 V)	$\pm 0,2\%$	-
Ripple & Noise	< 75mVpp	Bandwidth = 20 MHz
Max. continuous output current I_{nom}	± 625 mA	-
Minimum load	0 A	-
Max. capacitive load	625 μ F	-
Transient response	< 500 μ s	load change from full load to 50% I_{nom}
Short circuit protection	continuous	-
Temperature coefficient	$\pm 0,02\%$ / °C	-

3 Enviroment

Working temperature	-25°C ... +71°C +71°C ... +100°C	unlimited derating down to 0W output power (see fig. 6.1)
Max. allowed case temperature	< +100°C	-
storage temperature	-40°C ... +100°C	-
Humidity	$\leq 95\%$	No condensation allowed

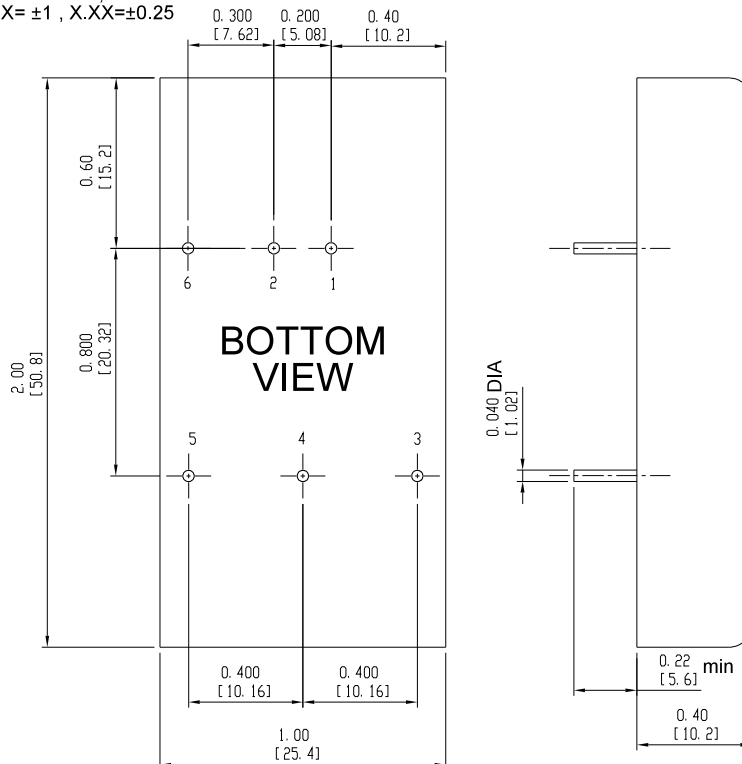
4 General data

Isolation voltage	500 VDC	-
Isolation resistance	100MΩ	-
Switching frequency	typ. 300 kHz	-
Max. efficiency	typ. 83%	-
Dimensions		see fig. 5.1
Case		Copper, black, non conductive baseplate
Weight	32 g	-

5 Dimensions

All dimensions are given in millimeters and have a general tolerance according to DIN ISO 2768 - m.

NOTE: Pin Size is 0.04±0.004 Inch (1.0±0.1 mm)DIA
All Dimensions In Inches (mm)
Tolerances Inches: X.XX= ±0.04 , X.XXX= ±0.010
Millimeters: X.X= ±1 , X.XX=±0.25



PIN CONNECTION	
Pin	Function
1.	+V Input
2.	-V Input
3.	+V Output
4.	Common/NP
5.	-V Output
6.	NP

*NP-NO PIN ON SINGLE OUTPUT

Figure 5.1: Dimensions

6 Characteristics

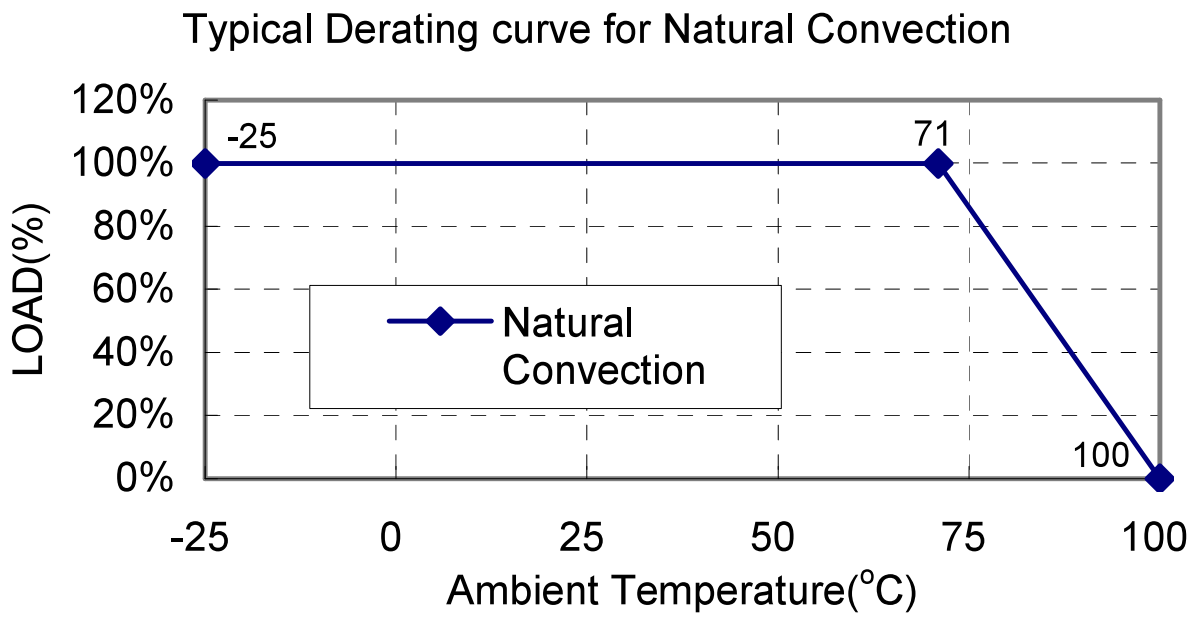


Figure 6.1: Derating

E15UW

geregelter DC/DC Wandler; Weitbereichseingang 4:1
regulated DC/DC converter; wide range input 4:1



Weitbereichseingang 4:1
PI-Eingangsfiler
Wirkungsgrad < 82%
Dauerkurzschlussfest
Galvanische Trennung 500VDC min.
Allseitige Schirmung
Dual/Tripel Version: Mindestlast ca. 10%

Wide range input 4:1
PI-Input filter
Efficiency < 82%
Continuous short circuit protection
Input/output isolation 500VDC min.
Six-sided shield
Dual/Triple Version: Minimal load ca. 10%

Option: 
 File No. E176177

Type	Input voltage	Output voltage	Output current	Input current		Efficiency	Cat. No.
				no load	full load		
E15UW24R5	9-36VDC	5VDC	3000mA	15mA	810mA	77%	115230
E15UW24R12	9-36VDC	12VDC	1250mA	15mA	780mA	80%	115231
E15UW24R15	9-36VDC	15VDC	1000mA	15mA	780mA	80%	115232
E15UW24R5-5	9-36VDC	±5VDC	±1500mA	20mA	810mA	77%	115233
E15UW24R12-12	9-36VDC	±12VDC	±625mA	20mA	780mA	80%	115234
E15UW24R15-15	9-36VDC	±15VDC	±500mA	20mA	780mA	80%	115235
E15UW24R5-12-12	9-36VDC	5/±12VDC	1500/±310mA	20mA	780mA	80%	115236
E15UW24R5-15-15	9-36VDC	5/±15VDC	1500/±250mA	20mA	780mA	80%	115237
E15UW24R3,3	9-36VDC	3,3VDC	3000mA	15mA	545mA	76%	115238
E15UW48R5	18-72VDC	5VDC	3000mA	10mA	410mA	77%	115239
E15UW48R12	18-72VDC	12VDC	1250mA	10mA	390mA	80%	115240
E15UW48R15	18-72VDC	15VDC	1000mA	10mA	390mA	80%	115241
E15UW48R5-5	18-72VDC	±5VDC	±1500mA	15mA	400mA	79%	115242
E15UW48R12-12	18-72VDC	±12VDC	±625mA	15mA	380mA	82%	115243
E15UW48R15-15	18-72VDC	±15VDC	±500mA	15mA	380mA	82%	115244
E15UW48R5-12-12	18-72VDC	5/±12VDC	1500/±310mA	15mA	380mA	82%	115245
E15UW48R5-15-15	18-72VDC	5/±15VDC	1500/±250mA	15mA	380mA	82%	115246
E15UW48R3,3	18-72VDC	3,3VDC	3000mA	10mA	270mA	76%	115247

DC/DC Wandler
DC/DC converter

E15UW

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

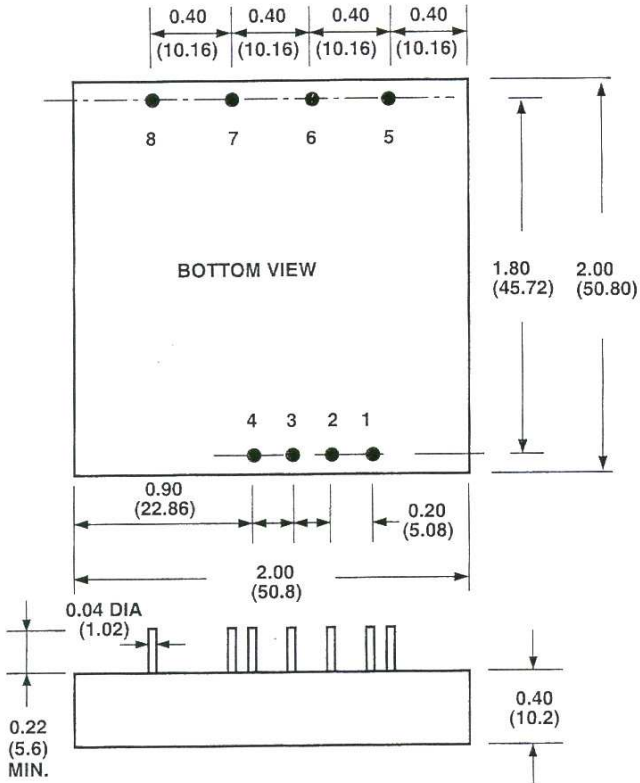
Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit single <i>Output accuracy single</i>	±1% max
Ausgangsgenauigkeit dual <i>Output accuracy dual</i>	±1% max. / ±1% max.
Ausgangsgenauigkeit triple <i>Output accuracy triple</i>	5V: ±2% max., 12V/15V: ±3% max.
Ausgangsspannung einstellbar <i>Output voltage adjustable</i>	±10% über externes Potentiometer <i>±10% via external trimpot</i>
Regelabweichung bei Laständerung <i>Load regulation</i>	Single/dual: ±1,0%max., triple: ±5,0%max., gemessen von Vollast zu 1/4 Last <i>Single/dual: ±1,0% max., triple: ±5,0% max., measured from full load to 1/4 load</i>
Regelabweichung bei Eingangänderung <i>Line regulation</i>	Single/dual: ±0,2%max, triple: ±1,0% max, measured from Umax to Umin
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	10mVRMS max. (75mVpp max.)
Mindest Last <i>Minimal load</i>	Dual/Tripel Version: ca. 10%

Umgebung *Environment*

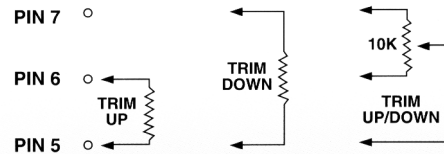
Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C ~+71°C
Lagertemperatur <i>Storage temperature</i>	-55°C~+105°C
Gehäusetemperatur <i>Case temperature</i>	100°C max.
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10⁹Ω
Schaltfrequenz <i>Switching frequency</i>	300kHz min.
Galvanische Trennung <i>Insulation voltage</i>	500VDC, min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest <i>continuous short circuit protected</i>
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	50,8 x 50,8 x 10,2mm (BxTxH)

Gehäuse
Case
Gewicht / weight

Kupfer, schwarz, Bodenplatte Isolierstoff
Copper, black, non conductive baseplate
57,1 g



Output Trim:



Pin Belegung / Pin assignment

	1	2	3	4	5	6	7	8
single	Remote on/off	NP	-Vin	+Vin	TRIM	-Vout	+Vout	NP
dual	Remote on/off	NP	-Vin	+Vin	TRIM	-Vout	GND	+Vout
triple	Remote on/off	NP	-Vin	+Vin	-Aux.Out	GND	+5Vout	+Aux.Out

NP=no pin

DC/DC Wandler
DC/DC converter

E15UW

Remote ON/OFF Control

Optional: Die E15UW-Serie kann elektronisch durch Remote ON/OFF ein- u. ausgeschaltet werden.
Die E15UW-Serie wird mit „positiv logic“ betrieben, d.h. der DC/DC Wandler ist in Betrieb, so lange der PIN Remote ON/OFF nicht extern beschaltet wird.

Option: The E15UW-series allows the user to switch the module on and off electronically with remote on/off feature.
The E15UW-series is available with "positiv logic", means the DC/DC converter is in operation as long as the PIN Remote ON/OFF is not connected to GND via an external circuit.

Triple Output Loading Table

Output (pin no.)	Voltage	Amperes	
		min	nom.
7	+5	0,25	1,5
8&5	±12	0,10	0,31
8&5	±15	0,10	0,25

Logic Table:

Positive Logic	State PIN1
REMOTE ON	Open
REMOTE OFF	GND (connected to PIN3 e.g. via external Transistor – see scematic)

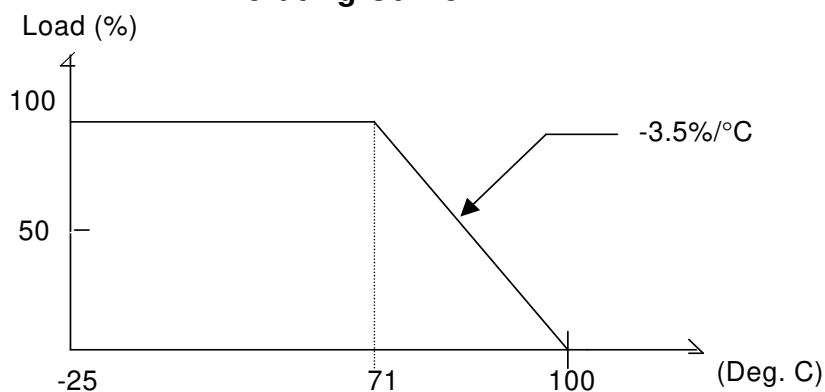
Anmerkung: Im Zustand REMOTE ON bleibt der PIN1 in jedem Fall unbeschaltet

(Achtung! In keinem Fall Spannung einspeisen).

Attention: In operation state REMOTE ON PIN8 is in any case open

(Attention! In no case connect to any input voltage).

Derating Curve :



- Operating Temperature : -25°C to 71°C ---> without derating
- Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E15W

geregelter DC/DC Wandler; Weitbereichseingang 2:1
regulated DC/DC converter; wide range input 2:1



Weitbereichseingang 2:1
2" x 2" Gehäuse
PI-Eingangsfiler
Wirkungsgrad bis 82%
Arbeitstemperatur -25°C ~ +71°C
Galvanische Trennung 500VDC min.
Dauerkurzschlussfest
Dual Version: Mindestlast ca. 10%

Wide range input 2:1
2" x 2" case
PI-Input filter
Efficiency up to 82%
Operat. temp. range -25°C ~ +71°C
Input/output isolation 500VDC min.
Continuous short circuit protected
Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output Current	Input current		Efficiency %	Cat. Nr.
				no load	full load		
E15W12R3,3C	9-18VDC	3,3VDC	3000mA	35mA	1620mA	70	112123C
E15W12R5C	9-18VDC	5VDC	3000mA	30mA	1660mA	75	112117C
E15W12R12C	9-18VDC	12VDC	1250mA	30mA	1625mA	78	112118C
E15W12R15C	9-18VDC	15VDC	1000mA	30mA	1625mA	78	112119C
E15W12R5-5C	9-18VDC	±5VDC	±1500mA	35mA	1620mA	77	112122C
E15W12R12-12C	9-18VDC	±12VDC	±625mA	35mA	1620mA	77	112120C
E15W12R15-15C	9-18VDC	±15VDC	±500mA	35mA	1620mA	77	112121C
E15W24R3,3C	18-36VDC	3,3VDC	3000mA	15mA	557mA	74	112125C
E15W24R5C	18-36VDC	5VDC	3000mA	15mA	812mA	78	112105C
E15W24R12C	18-36VDC	12VDC	1250mA	20mA	772mA	81	112106C
E15W24R15C	18-36VDC	15VDC	1000mA	20mA	772mA	81	112107C
E15W24R5-5C	18-36VDC	±5VDC	±1500mA	25mA	780mA	80	112124C
E15W24R12-12C	18-36VDC	±12VDC	±625mA	25mA	780mA	80	112108C
E15W24R15-15C	18-36VDC	±15VDC	±500mA	25mA	780mA	80	112109C
E15W48R3,3C	36-72VDC	3,3VDC	3000mA	20mA	271mA	76	112116C
E15W48R5C	36-72VDC	5VDC	3000mA	10mA	390mA	80	112110C
E15W48R12C	36-72VDC	12VDC	1250mA	15mA	381mA	82	112111C
E15W48R15C	36-72VDC	15VDC	1000mA	15mA	381mA	82	112112C
E15W48R5-5C	36-72VDC	±5VDC	±1500mA	20mA	386mA	81	112115C
E15W48R12-12C	36-72VDC	±12VDC	±625mA	20mA	386mA	81	112113C
E15W48R15-15C	36-72VDC	±15VDC	±500mA	20mA	386mA	81	112114C

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
---	-----------------------------------

Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit single <i>Output accuracy single</i>	±1% max.
Ausgangsgenauigkeit dual <i>Output accuracy dual</i>	±3% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,2%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	75mVpp
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

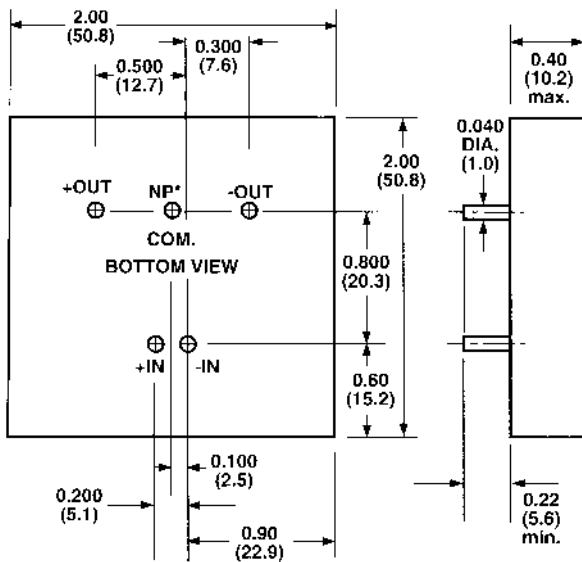
Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C ... +71°C (71°C ... 100°C Derating 3.5% / °C)
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Filterung <i>EMI filter</i>	PI-Filter
Gehäusetemperatur <i>Case temperature</i>	100°C max
Elektromagnetische Verträglichkeit <i>Electromagnetic compatibility</i>	Sechseitige Schirmung <i>Six sided shielding</i>
Externe Sicherung <i>External fuse</i>	UE 9-18VDC: 2500mA UE 18-36VDC: 1250mA UE 36-72VDC: 600mA
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	200kHz min.
Prüfspannung <i>Test voltage</i>	500VDC, min.
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen (BxHxT) <i>Dimensions</i>	50,8 x 50,8 x 10,2mm
Gehäuse <i>Case</i>	Kupfer, schwarz <i>Copper, black</i>

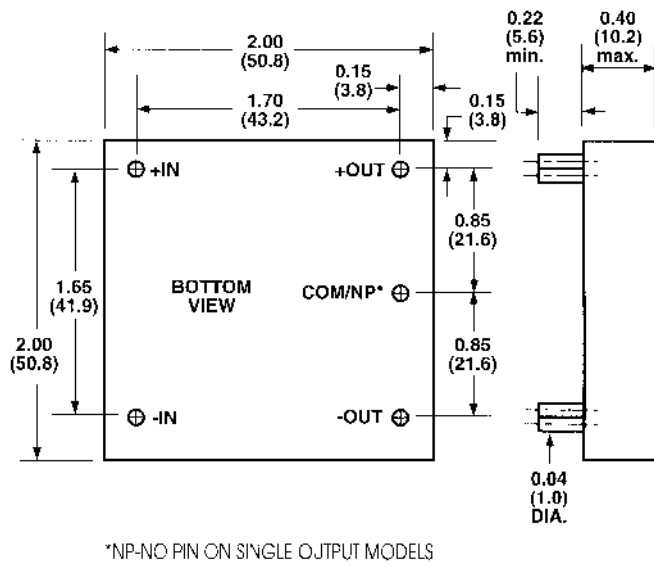
Gehäuse Option S
Case option S
Gewicht / weight
Montagezubehör auf Anfrage

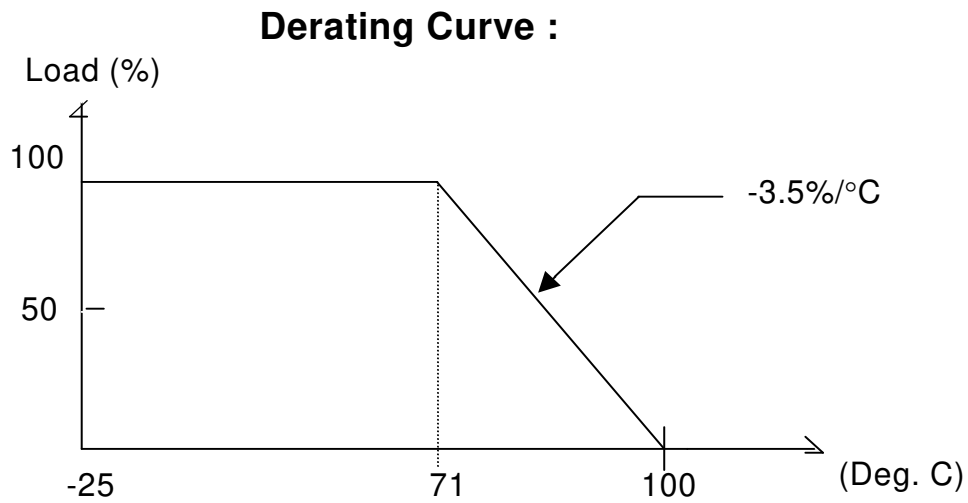
Alternative Pin-Konfiguration
Alternative pin configuration
56,1 g
Mounting accessoires on demand

STANDARD PIN CONFIGURATION



ALTERNATIVE PIN CONFIGURATION SUFFIX "S"





- a. Operating Temperature : -25°C to 71°C ---> without derating
- b. Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E10ZW

geregelter DC/DC Wandler; Weitbereichseingang 2:1
regulated DC/DC converter; wide range input 2:1



Weitbereichseingang 2:1
PI-EingangsfILTER
Dauerkurzschlussfest
Galvanische Trennung 500VDC min.
Funkentstört nach EN55011-A
Dual Version: Mindestlast ca. 10%

Wide range input 2:1
PI-Input filter
Continuous short circuit protection
Input/output isolation 500VDC min.
Noise suppression EN55011-A
Dual Version: Minimal load ca. 10%

Option: 
 File No. E176177

Type	Input voltage	Output voltage	Output Current	Input current		Efficiency %	Cat. Nr.
				no load	full load		
E10ZW12R5	9-18VDC	5VDC	2000mA	30mA	1100mA	76	111030
E10ZW12R12	9-18VDC	12VDC	830mA	30mA	1065mA	78	111031
E10ZW12R15	9-18VDC	15VDC	666mA	30mA	1065mA	78	111032
E10ZW12R12-12	9-18VDC	±12VDC	±415mA	40mA	1065mA	78	111033
E10ZW12R15-15	9-18VDC	±15VDC	±333mA	40mA	1065mA	78	111034
E10ZW12R5-5	9-18VDC	±5VDC	±1000mA	40mA	1065mA	78	111047
E10ZW24R5	18-36VDC	5VDC	2000mA	20mA	535mA	78	111035
E10ZW24R12	18-36VDC	12VDC	830mA	20mA	520mA	80	111036
E10ZW24R15	18-36VDC	15VDC	666mA	20mA	520mA	80	111037
E10ZW24R12-12	18-36VDC	±12VDC	±415mA	20mA	520mA	80	111038
E10ZW24R15-15	18-36VDC	±15VDC	±333mA	20mA	520mA	80	111039
E10ZW24R5-5	18-36VDC	±5VDC	±1000mA	20mA	520mA	80	111046
E10ZW48R5	36-72VDC	5VDC	2000mA	10mA	260mA	80	111040
E10ZW48R12	36-72VDC	12VDC	830mA	10mA	254mA	82	111041
E10ZW48R15	36-72VDC	15VDC	666mA	10mA	254mA	82	111042
E10ZW48R12-12	36-72VDC	±12VDC	±415mA	10mA	254mA	82	111043
E10ZW48R15-15	36-72VDC	±15VDC	±333mA	10mA	254mA	82	111044
E10ZW48R5-5	36-72VDC	±5VDC	±1000mA	10mA	254mA	82	111045

DC/DC Wandler
DC/DC converter

E10ZW

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
---	-----------------------------------

Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit single+dual <i>Output accuracy single</i>	±1%
Regelabweichung bei Laständerung <i>Load regulation</i>	±1,0% min. load necessary
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,2%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	100mVpp
Mindest Last <i>Minimal load</i>	ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating 71°C bis 100°C mit Derating (-3.5%/°C) -25°C to +71°C without derating 71°C to 100°C with derating (-3.5%/°C)
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Gehäusetemperatur <i>Case temperature</i>	100°C max
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Störaussendung <i>Generic emission standard</i>	EN55011-B
Störfestigkeit <i>Generic immunity standard</i>	EN61000-6-2
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	200kHz min.
Galvanische Trennung <i>Isolation voltage</i>	500VDC
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest <i>Continuous short circuit protected</i>
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	50,8 x 25,4 x 10,2mm (BxTxH)

Gehäuse

Case

Gewicht

Weight

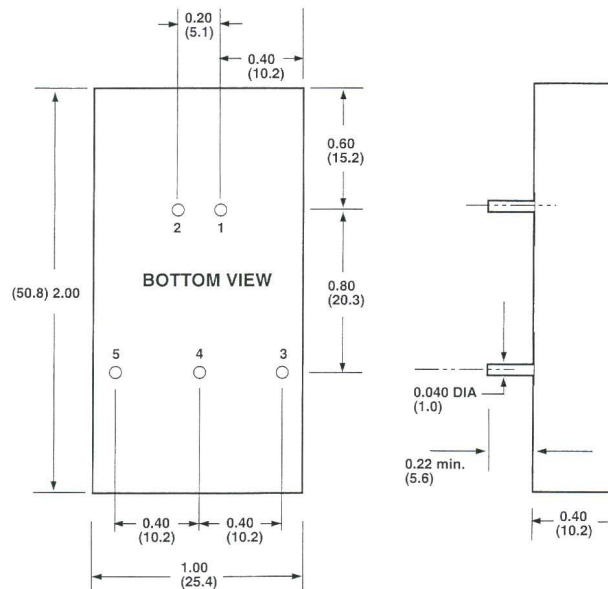
Montagezubehör auf Anfrage

Kupfer, schwarz, Bodenplatte Isolierstoff

Copper, black, non conductive baseplate

30,1 g

Mounting accessories on demand

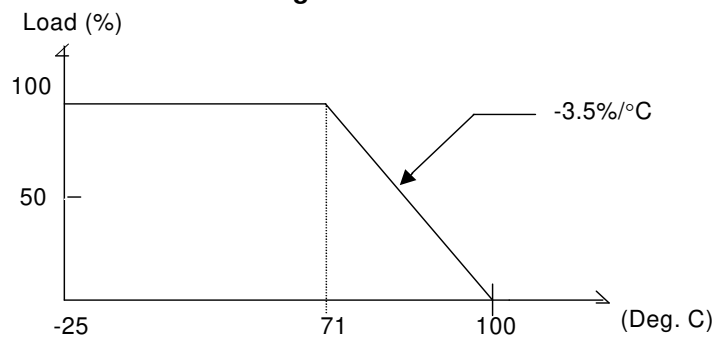


Pin Belegung / Pin assignment

	1	2	3	4	5
single	+In	-In	+Out	NP	-Out
dual	+In	-In	+Out	GND	-Out

NP=no pin

Derating Curve :



- Operating Temperature : -25°C to 71°C ---> without derating
- Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

DC/DC Wandler
DC/DC converter

E10ZW

E10UW

geregelter DC/DC Wandler; Weitbereichseingang 4:1
regulated DC/DC converter; wide range input 4:1



Weitbereichseingang 4:1
PI-Eingangsfiter
Dauerkurzschlussfest
Galvanische Trennung 500VDC min.
Funkentstört nach EN55011 Klasse A
Dual Version: Mindestlast ca. 10%

Wide range input 4:1
PI-Input filter
Continuous short circuit protection
Input/output isolation 500VDC min.
Noise suppression EN55011 class A
Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output Current	Input current		Efficiency	Cat. Nr.
				no load	full load		
E10UW24R3,3	9-36VDC	3,3VDC	2000mA	15mA	362mA	76	111132
E10UW24R5	9-36VDC	5VDC	2000mA	15mA	534mA	77	111121
E10UW24R12	9-36VDC	12VDC	830mA	15mA	520mA	80	111122
E10UW24R15	9-36VDC	15VDC	666mA	15mA	520mA	80	111123
E10UW24R5-5	9-36VDC	±5VDC	±1000mA	20mA	520mA	80	111131
E10UW24R12-12	9-36VDC	±12VDC	±415mA	20mA	520mA	80	111124
E10UW24R15-15	9-36VDC	±15VDC	±333mA	20mA	520mA	80	111125
E10UW48R3,3	18-75VDC	3,3VDC	2000mA	10mA	181mA	76	111134
E10UW48R5	18-75VDC	5VDC	2000mA	10mA	260mA	78	111126
E10UW48R12	18-75VDC	12VDC	830mA	10mA	257mA	80	111127
E10UW48R15	18-75VDC	15VDC	666mA	10mA	257mA	80	111128
E10UW48R5-5	18-75VDC	±5VDC	±1000mA	15mA	253mA	82	111133
E10UW48R12-12	18-75VDC	±12VDC	±415mA	15mA	257mA	82	111129
E10UW48R15-15	18-75VDC	±15VDC	±333mA	15mA	253mA	82	111130

Eingang *Input*

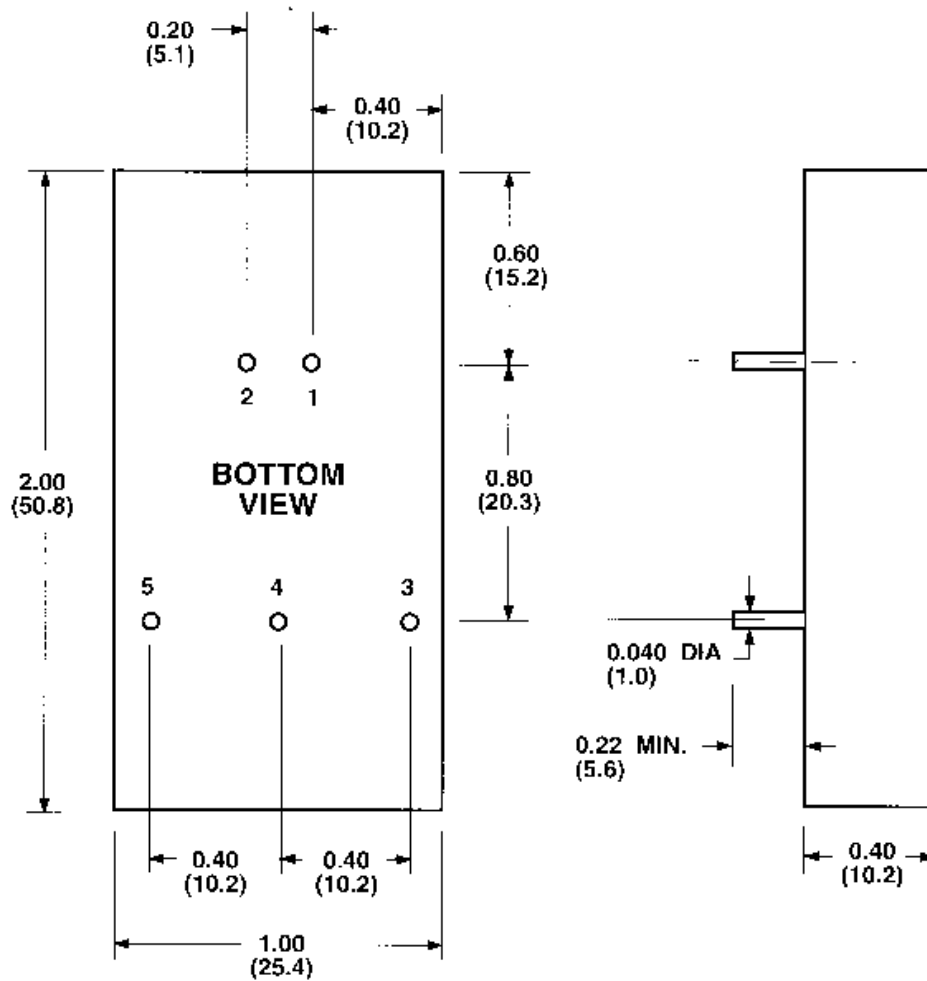
Eingangsspannungsbereich <i>Input voltage range</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit single <i>Output accuracy single</i>	±1%
Ausgangsgenauigkeit dual <i>Output accuracy dual</i>	±1%
Regelabweichung bei Laständerung <i>Load regulation</i>	±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,2%
Restwelligkeit <i>Ripple & noise (p-p)</i>	75mVpp max.
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C ~+71°C
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C max.
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Isolation resistance</i>	10⁹Ω
Schaltfrequenz <i>Switching frequency</i>	200kHz min.
Isolationsspannung <i>Isolation voltage</i>	500VDC
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest <i>Continuous short circuit protected</i>
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	50,8 x 25,4 x 10,2mm (BxTxH)
Gehäuse <i>Case</i>	Kupfer, schwarz, Bodenplatte Isolierstoff <i>Copper, black, non conductive baseplate</i>
Gewicht <i>Weight</i>	29,3 g
Montagezubehör auf Anfrage	<i>Mounting accessories on demand</i>



Pin Belegung / Pin assignment

	1	2	3	4	5
single	+In	-In	+Out	NP	-Out
dual	+In	-In	+Out	GND	-Out

NP=no pin

DC/DC Wandler
DC/DC converter

E10UW

E7,5W

geregelter DC/DC Wandler; Weitbereichseingang 2:1
regulated DC/DC converter; wide-range input 2:1



Weitbereichseingang 2:1
1" x 2" Gehäuse
PI-Eingangsfiler
Wirkungsgrad bis 82%
Remote On/Off (Option T)
Galvanische Trennung 1500VDC min.
Kurzschlussfest
Dual Version: Mindestlast ca. 10%

Wide range input 2:1
1" x 2" case
PI-Input filter
Efficiency up to 82%
Remote on/off (option T)
Input/output isolation 1500VDC min.
Short circuit protection
Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output current	Input current		Efficiency %	Cat. Nr.
				no load	full load		
E7,5W12R3,3	9-18VDC	3,3VDC	1500mA	7,5mA	557mA	74	110926
E7,5W12R5	9-18VDC	5VDC	1500mA	7,5mA	820mA	76	110930
E7,5W12R12	9-18VDC	12VDC	625mA	7,5mA	780mA	80	110931
E7,5W12R15	9-18VDC	15VDC	500mA	7,5mA	780mA	80	110932
E7,5W12R12-12	9-18VDC	±12VDC	±310mA	12mA	775mA	80	110933
E7,5W12R15-15	9-18VDC	±15VDC	±250mA	12mA	780mA	80	110934
E7,5W24R5	18-36VDC	5VDC	1500mA	5mA	400mA	78	110935
E7,5W24R12	18-36VDC	12VDC	625mA	5mA	380mA	82	110936
E7,5W24R15	18-36VDC	15VDC	500mA	5mA	380mA	82	110937
E7,5W24R12-12	18-36VDC	±12VDC	±310mA	7,5mA	385mA	81	110938
E7,5W24R15-15	18-36VDC	±15VDC	±250mA	7,5mA	385mA	81	110939
E7,5W48R3,3	36-72VDC	3,3VDC	1500mA	3mA	136mA	76	110928
E7,5W48R5	36-72VDC	5VDC	1500mA	2mA	200mA	78	110940
E7,5W48R12	36-72VDC	12VDC	625mA	2mA	192mA	81	110941
E7,5W48R15	36-72VDC	15VDC	500mA	2mA	192mA	81	110942
E7,5W48R12-12	36-72VDC	±12VDC	±310mA	3mA	192mA	81	110943
E7,5W48R15-15	36-72VDC	±15VDC	±250mA	3mA	192mA	81	110944

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

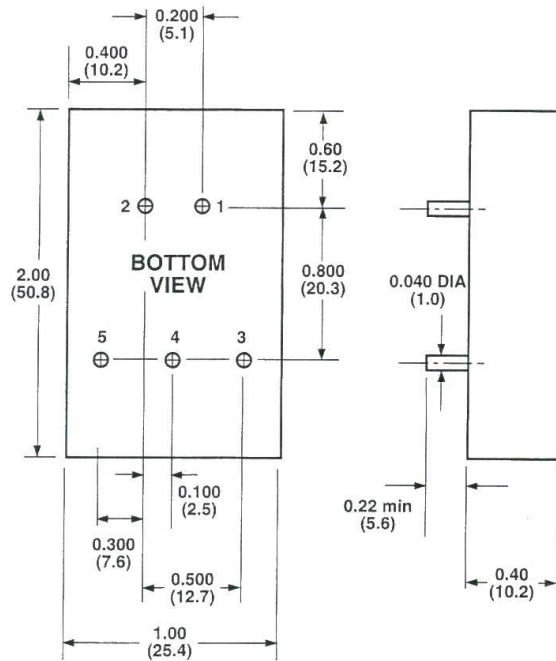
Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±2,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	Single: ±0,5% max.; dual: ±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,5%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	3,3V/ 5V: 100mVpp, 12/15V: 1% Vpp max.
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating 71°C bis 100°C mit Derating (-3.5%/°C) -25°C to +71°C without derating 71°C to 100°C with derating (-3.5%/°C)
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,05% / °C
Maximale Gehäusetemperatur <i>Case-temperature max.</i>	Kunststoff 95°C max., Kupfer 100°C max. Plastic 95°C max., copper 100°C max.
Kühlung <i>Cooling</i>	Freie Konvektion Free air-convection
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	100kHz min.
Isolationsspannung standard <i>Insulation voltage standard</i>	1500VDC, min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest Continuous short circuit protected
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	50,8x24,4x10,2mm (BxTxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz Plastic, black
Gehäuse, Option M <i>Case, option M</i>	Kupfer, schwarz, Bodenplatte Isolierstoff Copper, black, non-conductive baseplate
Gewicht <i>Weight</i>	30,2 g
Montagezubehör auf Anfrage	Mounting accessoires on demand

DC/DC Wandler
DC/DC converter

E7,5W



Pin Belegung / Pin assignment

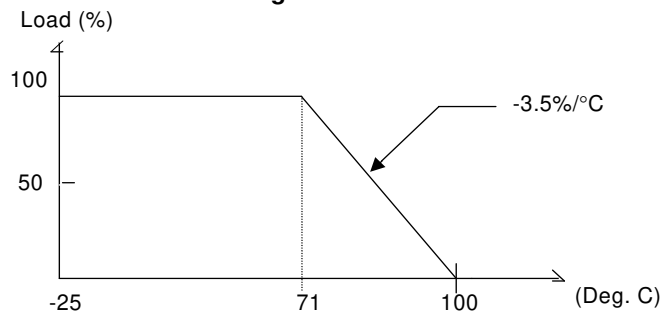
	1	2	3	4	5
single	+In	-In	+Out	+NP	-Out
dual	+In	-In	+Out	GND	-Out

NP=no pin

NC=no connection with pin

TP=test point

Derating Curve :

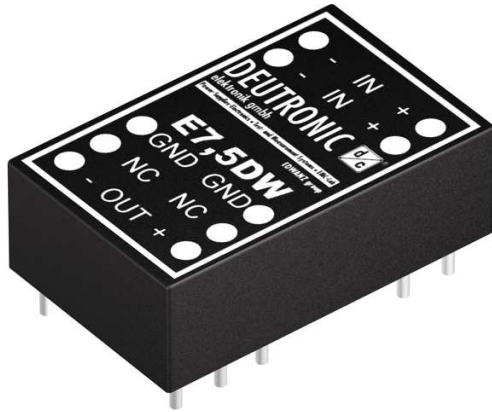


a. Operating Temperature : -25°C to 71°C ---> without derating

b. Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E7,5DW

geregelter DC/DC Wandler; Weitbereichseingang 2:1
regulated DC/DC converter; wide range input 2:1



Weitbereichseingang 2:1
DIL24 Gehäuse
PI-Eingangsfiler
Wirkungsgrad bis 83%
Galvanische Trennung 1500VDC min.
Kurzschlußfest
Dual Version: Mindestlast ca. 10%

Wide range input 2:1
24-Pin DIP Package
PI-Input filter
Efficiency up to 83%
Input/output isolation 1500VDC min.
Short circuit protection
Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output current	Input current		Efficiency %	Cat. No.
				no load	full load		
E7,5DW12R5	9-18VDC	5VDC	1500mA	25mA	801mA	82	110969
E7,5DW12R12	9-18VDC	12VDC	625mA	25mA	762mA	82	110970
E7,5DW12R15	9-18VDC	15VDC	500mA	25mA	762mA	82	110971
E7,5DW12R5-5	9-18VDC	±5VDC	±750mA	30mA	791mA	82	110972
E7,5DW12R12-12	9-18VDC	±12VDC	±310mA	30mA	753mA	83	110973
E7,5DW12R15-15	9-18VDC	±15VDC	±250mA	30mA	753mA	83	110974
E7,5DW24R5	18-36VDC	5VDC	1500mA	20mA	396mA	82	110975
E7,5DW24R12	18-36VDC	12VDC	625mA	20mA	381mA	82	110976
E7,5DW24R15	18-36VDC	15VDC	500mA	20mA	381mA	82	110977
E7,5DW24R5-5	18-36VDC	±5VDC	±750mA	25mA	386mA	82	110978
E7,5DW24R12-12	18-36VDC	±12VDC	±310mA	25mA	377mA	83	110979
E7,5DW24R15-15	18-36VDC	±15VDC	±250mA	25mA	377mA	83	110980
E7,5DW48R5	36-72VDC	5VDC	1500mA	10mA	195mA	82	110981
E7,5DW48R12	36-72VDC	12VDC	625mA	10mA	190mA	82	110982
E7,5DW48R15	36-72VDC	15VDC	500mA	10mA	190mA	82	110983
E7,5DW48R5-5	36-72VDC	±5VDC	±750mA	15mA	193mA	82	110984
E7,5DW48R12-12	36-72VDC	±12VDC	±310mA	15mA	188mA	83	110985
E7,5DW48R15-15	36-72VDC	±15VDC	±250mA	15mA	188mA	83	110986

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

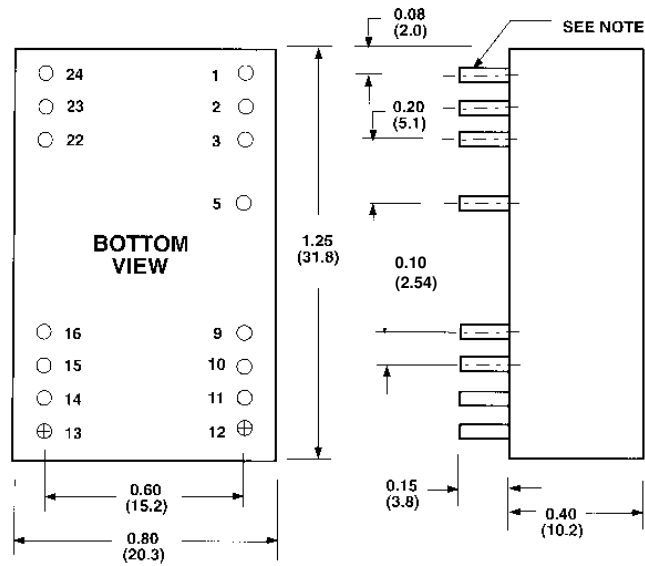
Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±1,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	Single: ±0,5% max.; dual: ±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,5%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	75mVpp max.
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating 71°C bis 100°C mit Derating (-3.5%/°C) -25°C to +71°C without derating 71°C to 100°C with derating (-3.5%/°C)
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,05% / °C
Maximale Gehäusetemperatur <i>Case-temperature max.</i>	Kunststoff 95°C max., Kupfer 100°C max. Plastic 95°C max., copper 100°C max.
Kühlung <i>Cooling</i>	Freie Konvektion Free air-convection
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	200kHz min.
Isolationsspannung standard <i>Isolation voltage standard</i>	1500VDC, min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest Continuous short circuit protected
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Gehäuse <i>Case</i>	Kupfer, schwarz, Bodenplatte Isolierstoff Copper, black, non-conductive baseplate
Abmessungen <i>Dimensions</i>	32 x 20 x 10mm (BxTxH)
Gewicht <i>Weight</i>	12,6 g
Montagezubehör auf Anfrage	Mounting accessoires on demand

DC/DC Wandler
DC/DC converter

E7,5DW



Pin Belegung / Pin assignment

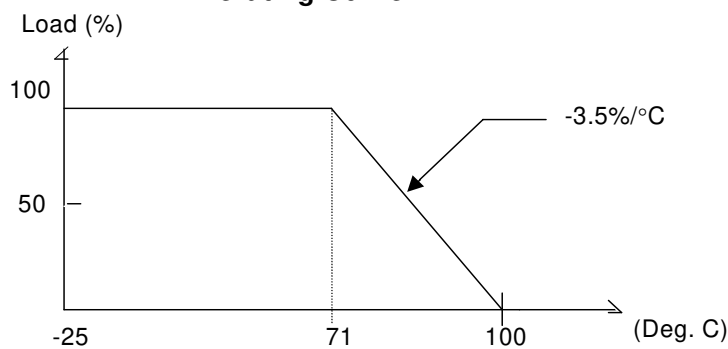
	1	2	3	5	9	10	11	12,13	14	15	16	22	23	24
single	NP	-In	-In	NP	NC	NC	NC	NP	+Out	NC	-Out	+In	+In	NP
dual	NP	-In	-In	NP	GND	NC	-Out	NP	+Out	NC	GND	+In	+In	NP

NP=no pin

NC=no connection with pin

TP=test point

Derating Curve :



a. Operating Temperature : -25°C to 71°C ---> without derating

b. Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E6W

geregelter DC/DC Wandler; Weitbereichseingang 2:1
regulated DC/DC converter; wide range input 2:1



Weitbereichseingang 2:1
2"x2" Gehäuse
PI-EingangsfILTER
Wirkungsgrad bis 82%
Arbeitstemperatur -25°C ~ +71°C
Kurzschlußfest
Galvanische Trennung 500VDC min.
Dual Version: Mindestlast ca. 10%

Wide range input 2:1
2"x2" case
PI-Input filter
Efficiency up to 82%
Operat. Temp. Range -25°C~+71°C
Short circuit protection
Input/output isolation 500VDCmin.
Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output Current	Input current		Efficiency%	Cat. No.
				no load	full load		
E6W5R5C	4,65-5,5VDC	5VDC	1000mA	60mA	1700mA	60	110900C
E6W5R12C	4,65-5,5VDC	12VDC	470mA	70mA	1750mA	60	110901C
E6W5R15C	4,65-5,5VDC	15VDC	400mA	70mA	1800mA	60	110902C
E6W5R12-12C	4,65-5,5VDC	±12VDC	±230mA	130mA	1700mA	60	110903C
E6W5R15-15C	4,65-5,5VDC	±15VDC	±190mA	140mA	1700mA	60	110904C
E6W12R5C	9-18VDC	5VDC	1000mA	7,5mA	545mA	77	111000C
E6W12R12C	9-18VDC	12VDC	470mA	7,5mA	585mA	80	111001C
E6W12R15C	9-18VDC	15VDC	400mA	7,5mA	625mA	80	111002C
E6W12R12-12C	9-18VDC	±12VDC	±230mA	12mA	575mA	80	111003C
E6W12R15-15C	9-18VDC	±15VDC	±190mA	12mA	590mA	80	111004C
E6W24R5C	18-36VDC	5VDC	1000mA	5mA	265mA	78	111005C
E6W24R12C	18-36VDC	12VDC	470mA	5mA	285mA	82	111006C
E6W24R15C	18-36VDC	15VDC	400mA	5mA	305mA	82	111007C
E6W24R12-12C	18-36VDC	±12VDC	±230mA	7,5mA	285mA	81	111008C
E6W24R15-15C	18-36VDC	±15VDC	±190mA	7,5mA	295mA	81	111009C
E6W48R5C	36-72VDC	5VDC	1000mA	2mA	133mA	78	111010C
E6W48R12C	36-72VDC	12VDC	470mA	2mA	143mA	81	111011C
E6W48R15C	36-72VDC	15VDC	400mA	2mA	154mA	81	111012C
E6W48R12-12C	36-72VDC	±12VDC	±230mA	3mA	142mA	81	111013C
E6W48R15-15C	36-72VDC	±15VDC	±190mA	3mA	147mA	81	111014C

DC/DC Wandler
DC/DC converter

E6W

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
Externe Sicherung verwenden bei: <i>Use external fuse for:</i>	UE 9-18VDC: 1000mA UE 18-36VDC: 500mA UE 36-72VDC: 250mA <i>UE 9-18VDC: 1000mA UE 18-36VDC: 500mA UE 36-72VDC: 250mA</i>

Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±2,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	±1% max.
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,5%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	5V:100mVpp max., 12/15V: 1%pp max.
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating 71°C bis 95°C mit Derating (linear bis 0% Leistung bei 95°C) <i>-25°C to +71°C without derating</i> <i>71°C to 95°C with derating (linearly to Zero power at 95°C)</i>
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Gehäusetemperatur <i>Case temperature</i>	95°C max
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Isolation resistance</i>	10⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	100kHz min.; 20kHz (@5V input)
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest ;Strombegrenzung (@5V input Kurzzeit) <i>Continuous Short ciruit portection; Current limitation (@5V input short term)</i>
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	50,8x50,8x10,2mm (BxTxH)
Gewicht <i>Weight</i>	51g
Gehäuse <i>Case</i>	Isoliertes schwarzes Kunststoffgehäuse <i>Non conductive black plastic</i>

DC/DC Wandler
DC/DC converter

E6W

Gehäuse, Option M

Case, option M

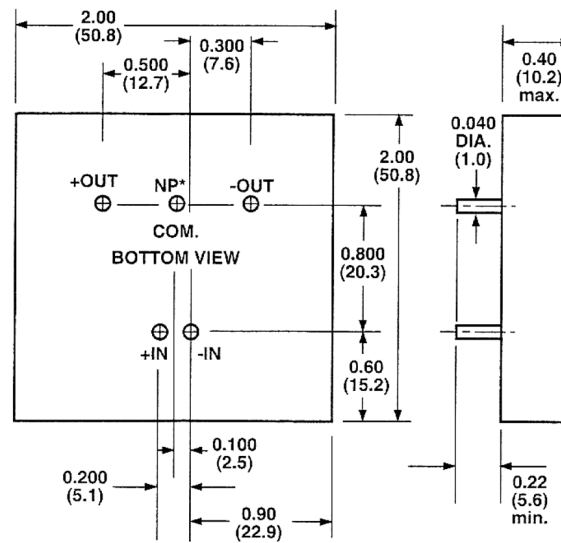
Montagezubehör auf Anfrage

Mounting accessories on request

Kupfer, schwarz, Bodenplatte Isolierstoff

Copper, black, non conductive baseplate

Abmessungen Dimensions



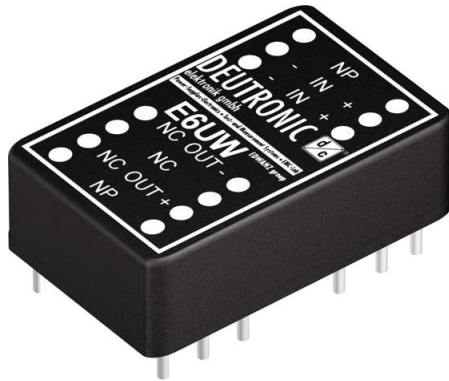
NP*: No PIN on single output models

DC/DC Wandler
DC/DC converter

E6W

E6UW

geregelter DC/DC Wandler; Weitbereichseingang 4:1
regulated DC/DC converter; wide range input 4:1



Weitbereichseingang 4:1
24-poliges DIL-Raster
Galvanische Trennung 1500VDC min.
Option H 3kV
Kurzschlußfest
Dual Version: Mindestlast ca. 10%

Wide range input 4:1
Footprint 24-pin DIL
Input/output isolation 1500VDC min.
Option H 3kV
Short circuit protection
Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output current	Input current		Efficiency %	Cat. No.
				no load	full load		
E6UW24R3,3	9-36VDC	3,3VDC	1000mA	15mA	191mA	72	111185
E6UW24R5	9-36VDC	5VDC	1000mA	15mA	267mA	78	111172
E6UW24R12	9-36VDC	12VDC	470mA	15mA	294mA	82	111173
E6UW24R15	9-36VDC	15VDC	400mA	15mA	313mA	82	111174
E6UW24R5-5	9-36VDC	±5VDC	±500mA	25mA	267mA	78	111177
E6UW24R12-12	9-36VDC	±12VDC	±230mA	25mA	288mA	82	111175
E6UW24R15-15	9-36VDC	±15VDC	±190mA	25mA	297mA	82	111176
E6UW48R3,3	18-72VDC	3,3VDC	1000mA	7,5mA	100mA	70	111184
E6UW48R5	18-72VDC	5VDC	1000mA	7,5mA	134mA	80	111178
E6UW48R12	18-72VDC	12VDC	470mA	7,5mA	147mA	82	111179
E6UW48R15	18-72VDC	15VDC	400mA	7,5mA	157mA	82	111180
E6UW48R5-5	18-72VDC	±5VDC	±500mA	12mA	134mA	78	111183
E6UW48R12-12	18-72VDC	±12VDC	±230mA	12mA	144mA	82	111181
E6UW48R15-15	18-72VDC	±15VDC	±190mA	12mA	149mA	82	111182

Eingang *Input*

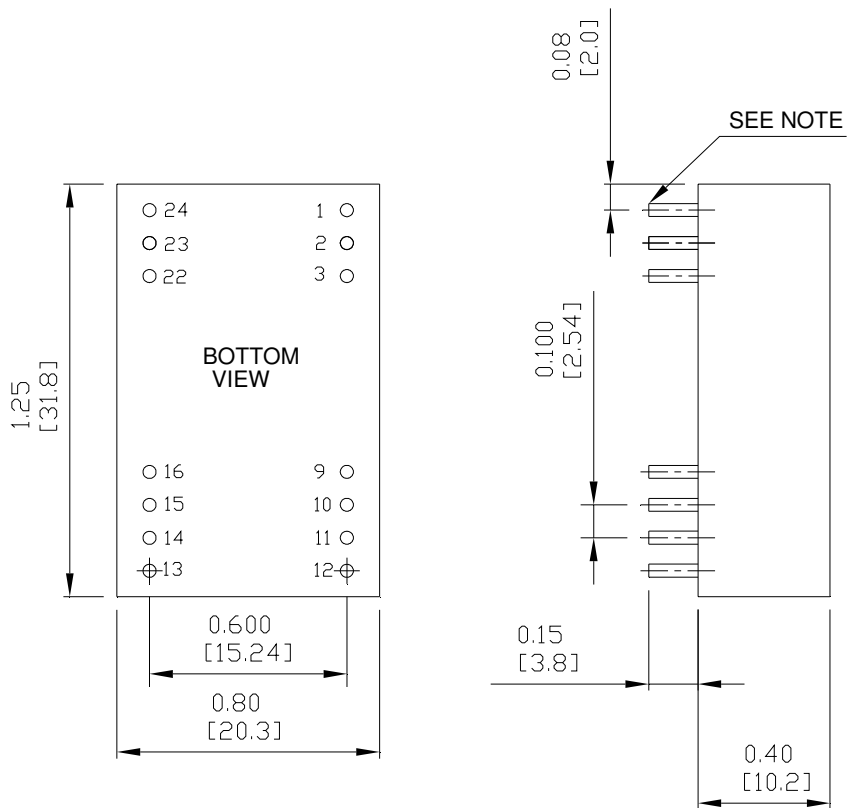
Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±1,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	Single ±0,5% max / dual ±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,5%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	Single 75mVpp max. dual 1%Vpp max
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C ~+71°C
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,05% / °C
Maximale Gehäusetemperatur <i>Case-temperature max.</i>	Kunststoff 95°C max., Kupfer 100°C max. <i>Plastic 95°C max., copper 100°C max.</i>
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	200kHz min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest <i>Permanent short circuit protected</i>
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Isolationsspannung standard <i>Isolation voltage standard</i>	1500VDC, min
Isolationsspannung option H <i>Isolation voltage option H</i>	3000VDC, min.
Abmessungen <i>Dimensions</i>	31,8x20,3x10,2mm (BxTxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz <i>Plastic, black</i>
Gehäuse, Option M <i>Case, option M</i>	Kupfer, schwarz, Bodenplatte Isolierstoff <i>Copper, black, non-conductive baseplate</i>
Gewicht <i>Weight</i>	12,8 g
Montagezubehör auf Anfrage	<i>Mounting accessoires on request</i>



Pin Belegung / Pin assignment

	1	2	3	5	9	10	11	12,13	14	15	16	22	23	24
single	NP	-In	-In	NP	NC	NC	NC	NP	+Out	NC	-Out	+In	+In	NP
dual	NP	-In	-In	NP	GND	NC	-Out	NP	+Out	NC	GND	+In	+In	NP

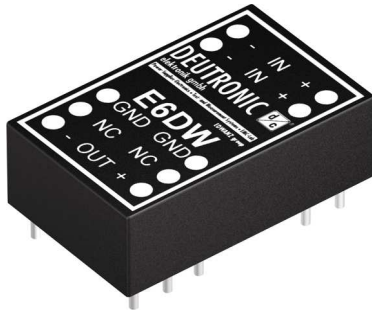
NP=no pin

NC=no connection with pin

TP=test point

E6DW

geregelter DC/DC Wandler; Weitbereichseingang 2:1
regulated DC/DC converter; wide range input 2:1



Option: 
 File No. E176177

Option: H bzw. HM Version

Weitbereichseingang 2:1
PI-Eingangsfiler
Wirkungsgrad bis 82%
24-poliges DIL-Raster
Galvanische Trennung 500VDC min.
Option H: 3kV
Kurzschlussfest
Dual Version: Mindestlast ca. 10%

Wide range input 2:1
PI-Input filter
Efficiency up to 82%
Footprint 24-pin DIL
Input/output isolation 500VDC min.
Option H: 3kV
Short circuit protection
Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output current	Input current		Efficiency %	Cat. No.
				no load	full load		
E6DW12R3,3	9-18VDC	3,3VDC	1000mA	7,5mA	393mA	68	110949
E6DW12R5	9-18VDC	5VDC	1000mA	7,5mA	545mA	76	110950
E6DW12R12	9-18VDC	12VDC	470mA	7,5mA	585mA	80	110951
E6DW12R15	9-18VDC	15VDC	400mA	7,5mA	625mA	80	110952
E6DW12R12-12	9-18VDC	±12VDC	±230mA	12mA	575mA	80	110953
E6DW12R15-15	9-18VDC	±15VDC	±190mA	12mA	590mA	80	110954
E6DW24R3,3	18-36VDC	3,3VDC	1000mA	5mA	197mA	70	110948
E6DW24R5	18-36VDC	5VDC	1000mA	5mA	265mA	78	110955
E6DW24R12	18-36VDC	12VDC	470mA	5mA	285mA	82	110956
E6DW24R15	18-36VDC	15VDC	400mA	5mA	305mA	82	110957
E6DW24R12-12	18-36VDC	±12VDC	±230mA	7,5mA	285mA	81	110958
E6DW24R15-15	18-36VDC	±15VDC	±190mA	7,5mA	295mA	81	110959
E6DW48R3,3	36-72VDC	3,3VDC	1000mA	2mA	98mA	70	110947
E6DW48R5	36-72VDC	5VDC	1000mA	2mA	133mA	78	110960
E6DW48R12	36-72VDC	12VDC	470mA	2mA	145mA	81	110961
E6DW48R15	36-72VDC	15VDC	400mA	2mA	154mA	81	110962
E6DW48R12-12	36-72VDC	±12VDC	±230mA	3mA	142mA	81	110963
E6DW48R15-15	36-72VDC	±15VDC	±190mA	3mA	147mA	81	110964

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±2,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	Single ±0,5% / dual ±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,5%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	3,3V/ 5V: 100mVpp max.; 12/15V: 1% Vpp max.
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating 71°C bis 100°C mit Derating (-3.5%/°C) -25°C to +71°C without derating 71°C to 100°C with derating (-3.5%/°C)
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,05% / °C
Maximale Gehäusetemperatur <i>Case-temperature max.</i>	Kunststoff 95°C max., Kupfer 100°C max. Plastic 95°C max., copper 100°C max.
Kühlung <i>Cooling</i>	Freie Konvektion Free air-convection
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	150kHz min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest Continuous short circuit protected
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Isolationsspannung standard <i>Insulation voltage standard</i>	500VDC, min.
Isolationsspannung option H <i>Insulation voltage option H</i>	3kVDC, min.

Abmessungen

Dimensions

Gehäuse, standard

Case, standard

Gehäuse, Option M

Case, option M

Gewicht

Weight

Montagezubehör auf Anfrage

31,8x20,3x10,2mm (BxTxH)

Kunststoff, schwarz

Plastic, black

Kupfer, schwarz, Bodenplatte Isolierstoff

Copper, black, non-conductive baseplate

12,6 g

Mounting accessoires on demand

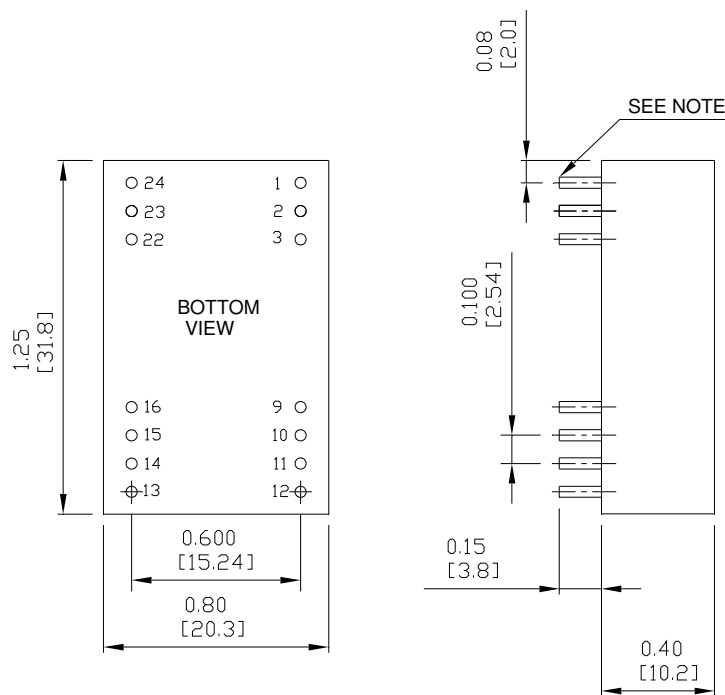
CASE A

NOTE: Pin Size is 0.02" Inch (0.5mm) DIA

All Dimensions In Inches (mm)

Tolerances Inches: X.XX= ± 0.02 , X.XXX= ± 0.010

Millimeters: X.X= ± 0.5 , X.XX= ± 0.25



Pin Belegung / Pin assignment

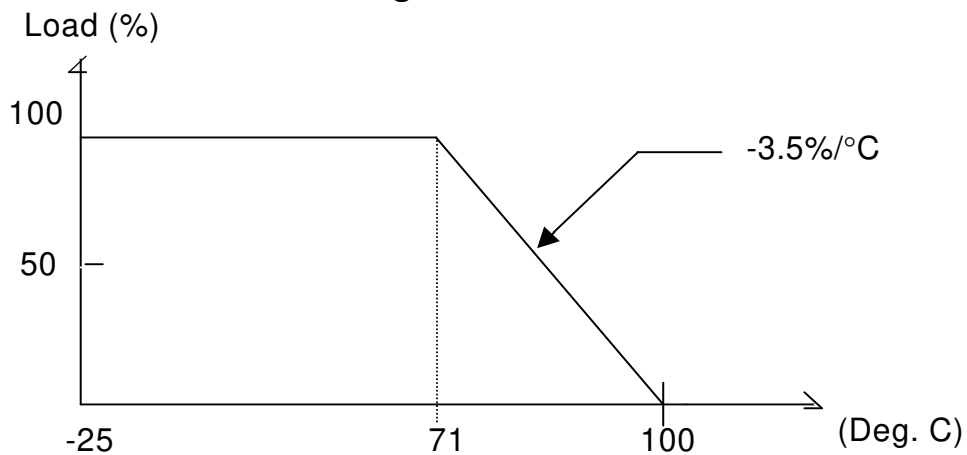
	1	2	3	9	10	11	12,13	14	15	16	22	23	24
single	+In	NC	NC	NP	-Out	+Out	-In	+Out	-Out	NP	NC	NC	+In
dual	+In	-Out	GND	NP	GND	+Out	-In	+Out	GND	NP	GND	-Out	+In

Pin Belegung / Pin assignment OptionH (3kV)

	1	2	3	9	10	11	12,13	14	15	16	22	23	24
single	NP	-In	-In	NC	NC	NC	NP	+Out	NC	-Out	+In	+In	NP
dual	NP	-In	-In	GND	NC	-Out	NP	+Out	NC	GND	+In	+In	NP

NP=no pin
 NC=no connection with pin
 TP=test point

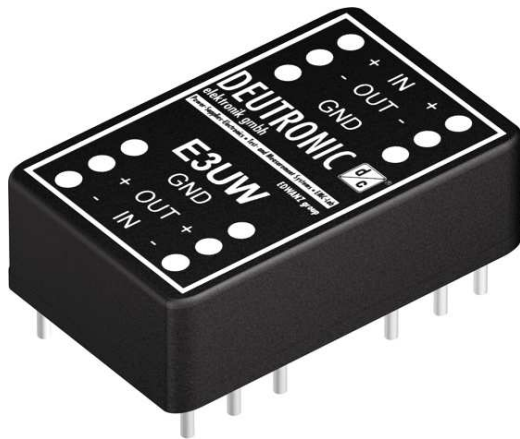
Derating Curve :



- a. Operating Temperature : -25°C to 71°C ---> without derating
- b. Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E3UW

geregelter DC/DC Wandler; Weitbereichseingang 4:1
regulated DC/DC converter; wide range input 4:1



Weitbereichseingang 4:1
 24-poliges DIL-Raster
 Galvanische Trennung 500VDC min.
 Option H: 3kV
 Kurzschlussfest
 Dual Version: Mindestlast ca. 10%

Wide range input 4:1
 Footprint 24-pin DIL
 Input/output isolation 500VDC min.
 Option H: 3kV
 Short circuit protection
 Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output current	Input current		Efficiency %	Cat. No.
				no load	full load		
E3UW24R3,3	9-36VDC	3,3VDC	600mA	15mA	117mA	70	110880
E3UW24R5	9-36VDC	5VDC	600mA	15mA	174mA	72	110881
E3UW24R12	9-36VDC	12VDC	250mA	15mA	165mA	76	110882
E3UW24R15	9-36VDC	15VDC	200mA	15mA	165mA	76	110883
E3UW24R5-5	9-36VDC	±5VDC	±300mA	25mA	179mA	70	110884
E3UW24R12-12	9-36VDC	±12VDC	±125mA	25mA	174mA	72	110885
E3UW24R15-15	9-36VDC	±15VDC	±100mA	25mA	174mA	72	110886
E3UW48R3,3	18-72VDC	3,3VDC	600mA	7,5mA	58mA	70	110890
E3UW48R5	18-72VDC	5VDC	600mA	7,5mA	87mA	72	110891
E3UW48R12	18-72VDC	12VDC	250mA	7,5mA	78mA	80	110892
E3UW48R15	18-72VDC	15VDC	200mA	7,5mA	78mA	80	110893
E3UW48R5-5	18-72VDC	±5VDC	±300mA	12mA	88mA	71	110894
E3UW48R12-12	18-72VDC	±12VDC	±125mA	12mA	87mA	72	110895
E3UW48R15-15	18-72VDC	±15VDC	±100mA	12mA	87mA	72	110896

Eingang *Input*

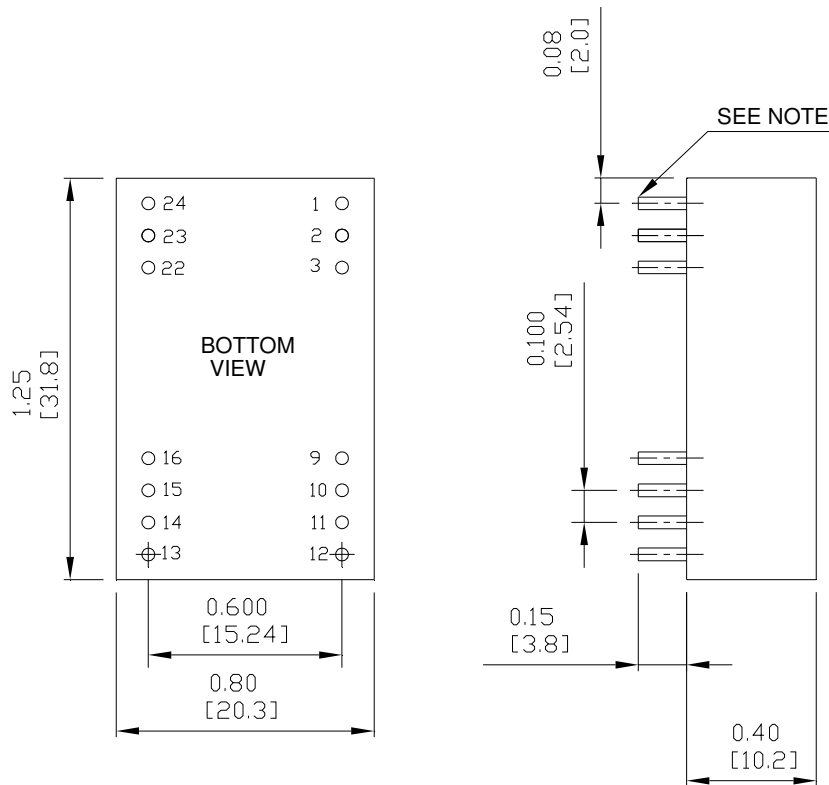
Eingangsspannung <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±2,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	Single: ±0,5% max.; dual: ±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,5%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	5V: 100mVpp max.; 12/15V: 1% Vpp max.
Mindest Last <i>Minimal load</i>	Dual Version: ca. 10% <i>Dual Version: ca. 10%</i>

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C ~+71°C
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,05% / °C
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Maximale Gehäusetemperatur <i>Case-temperature max.</i>	Kunststoff 95°C max., Kupfer 100°C max. <i>Plastic 95°C max., copper 100°C max.</i>
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10⁹Ω
Schaltfrequenz <i>Switching frequency</i>	100kHz min.
Isolationsspannung standard <i>Isolation voltage standard</i>	500VDC, min.
Isolationsspannung Option H <i>Isolation voltage option H</i>	3kVDC, min. <i>3kVDC, min.</i>
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest <i>Continuous short circuit protected</i>
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	31,8x20,3x10,2mm (BxTxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz <i>Plastic, black</i>
Gehäuse, Option M <i>Case, option M</i>	Kupfer, schwarz, Bodenplatte Isolierstoff <i>Copper, black, non-conductive baseplate</i>
Gewicht <i>Weight</i>	12,6 g
Montagezubehör auf Anfrage	Mounting accessoires on demand



Pin Belegung / Pin assignment

	1	2	3	5	9	10	11	12,13	14	15	16	22	23	24
single	+In	NC	NC	NP	NP	-Out	+Out	-In	+Out	-Out	NP	NC	NC	+In
dual	+In	-Out	GND	NP	NP	GND	+Out	-In	+Out	GND	NP	GND	-Out	+In

Pin Belegung / Pin assignment Option H (3kV)

	1	2	3	5	9	10	11	12,13	14	15	16	22	23	24
single	NP	-In	-In	NP	NC	NC	NC	NP	+Out	NC	-Out	+In	+In	NP
dual	NP	-In	-In	NP	GND	NC	-Out	NP	+Out	NC	GND	-In	+In	NP

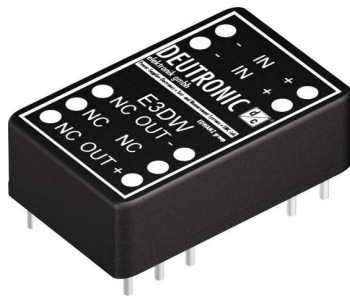
NP=no pin

NC=no connection with pin

TP=test point

E3DW

geregelter DC/DC Wandler, Weitbereichseingang 2:1
regulated DC/DC converter, wide range input 2:1



Weitbereichseingang 2:1
 PI-Eingangsfiler
 Wirkungsgrad bis 80%
 24-poliges DIL-Raster
 Galvanische Trennung 500VDC min.
 Option H: 3kV – auf Anfrage
 Option M Kupfergehäuse – auf Anfrage
 Kurzschlussfest
 Dual Version: Mindestlast ca. 10%
 Wide range input 2:1
PI-Input filter
Efficiency up to 80%
Footprint 24-pin DIL
Isolation 500VDC min.
Option H: 3kV
Option M copper
Short circuit protection
 Dual Version: Minimal load ca. 10%

Type	Input voltage	Output voltage	Output current	Input current		Efficiency %	Cat. No.
				no load	full load		
E3DW5R3,3	4,5-6VDC	3,3VDC	600mA	15mA	619mA	61	110879
E3DW5R5	4,5-6VDC	5VDC	600mA	15mA	850mA	70	110850
E3DW5R12	4,5-6VDC	12VDC	250mA	15mA	800mA	75	110851
E3DW5R15	4,5-6VDC	15VDC	200mA	15mA	800mA	75	110852
E3DW5R5-5	4,5-6VDC	±5VDC	±300mA	25mA	850mA	70	110853
E3DW5R12-12	4,5-6VDC	±12VDC	±125mA	25mA	800mA	75	110854
E3DW5R15-15	4,5-6VDC	±15VDC	±100mA	25mA	800mA	75	110855
E3DW12R3,3	9-18VDC	3,3VDC	600mA	7,5mA	236mA	65	110878
E3DW12R5	9-18VDC	5VDC	600mA	7,5mA	340mA	73	110856
E3DW12R12	9-18VDC	12VDC	250mA	7,5mA	320mA	78	110857
E3DW12R15	9-18VDC	15VDC	200mA	7,5mA	320mA	78	110858
E3DW12R5-5	9-18VDC	±5VDC	±300mA	12mA	340mA	73	110859
E3DW12R12-12	9-18VDC	±12VDC	±125mA	12mA	320mA	78	110860
E3DW12R15-15	9-18VDC	±15VDC	±100mA	12mA	320mA	78	110861
E3DW24R3,3	18-36VDC	3,3VDC	600mA	5mA	113mA	66	110877
E3DW24R5	18-36VDC	5VDC	600mA	5mA	168mA	74	110862
E3DW24R12	18-36VDC	12VDC	250mA	5mA	156mA	80	110863
E3DW24R15	18-36VDC	15VDC	200mA	5mA	156mA	80	110864
E3DW24R5-5	18-36VDC	±5VDC	±300mA	7,5mA	168mA	74	110865
E3DW24R12-12	18-36VDC	±12VDC	±125mA	7,5mA	156mA	80	110866
E3DW24R15-15	18-36VDC	±15VDC	±100mA	7,5mA	156mA	80	110867
E3DW48R3,3	36-72VDC	3,3VDC	600mA	3mA	58mA	68	110876
E3DW48R5	36-72VDC	5VDC	600mA	2mA	82mA	76	110868
E3DW48R12	36-72VDC	12VDC	250mA	2mA	78mA	80	110869
E3DW48R15	36-72VDC	15VDC	200mA	2mA	78mA	80	110870
E3DW48R5-5	36-72VDC	±5VDC	±300mA	3mA	82mA	76	110871
E3DW48R12-12	36-72VDC	±12VDC	±125mA	3mA	80mA	78	110872
E3DW48R15-15	36-72VDC	±15VDC	±100mA	3mA	80mA	78	110873

DC/DC Wandler
DC/DC converter

E3DW

Eingang *Input*

Eingang <i>Input voltage</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±2,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	Single: ±0,5% max.; dual: ±1,0%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,5%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	3,3V/ 5V: 100mVpp max.; 12/15V: 1% Vpp max.
Mindestlast <i>Minimal load</i>	Dual Version: ca. 10% Dual Version: ca. 10%

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating, 71°C bis 100°C mit Derating (-3,5%/°C) -25°C to +71°C without derating, 71°C to 100°C with derating (-3,5%/°C)
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Maximale Gehäusetemperatur <i>Case-temperature max.</i>	Kunststoff 95°C max., Kupfer 100°C max. Plastic 95°C max., copper 100°C max.
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,05% / °C
Kühlung <i>Cooling</i>	Freie Konvektion Free air-convection
Filterung <i>EMI filter</i>	PI-Filter PI-filter
Isolationswiderstand <i>Insulation resistance</i>	10 ⁹ Ω
Schaltfrequenz <i>Switching frequency</i>	100kHz min.
Isolationsspannung standard <i>Isolation voltage standard</i>	500VDC, min.
Isolationsspannung Option H <i>Isolation voltage option H</i>	3kVDC, min.
Kurzschlußfest <i>Short circuit protected</i>	Dauerkurzschlußfest Continuous short circuit protected
Wirkungsgrad <i>Efficiency</i>	siehe Tabelle <i>see table</i>
Abmessungen <i>Dimensions</i>	31,8x20,3x10,2mm (BxTxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz Plastic, black

DC/DC Wandler
DC/DC converter

E3DW

Gehäuse, Option M

Case, option M

Gewicht

Weight

Montagezubehör auf Anfrage

Kupfer, schwarz, Bodenplatte Isolierstoff

Copper, black, non-conductive baseplate

12,4 g

Mounting accessoires on demand

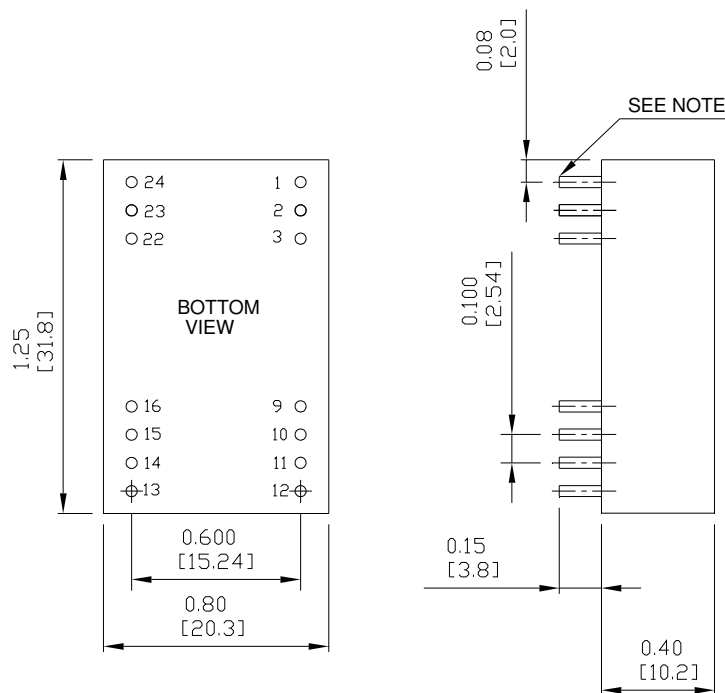
CASE A

NOTE: Pin Size is 0.02" Inch (0.5mm) DIA

All Dimensions In Inches (mm)

Tolerances Inches: X.XX= ± 0.02 , X.XXX= ± 0.010

Millimeters: X.X= ± 0.5 , X.XX= ± 0.25



Pin Belegung / Pin assignment

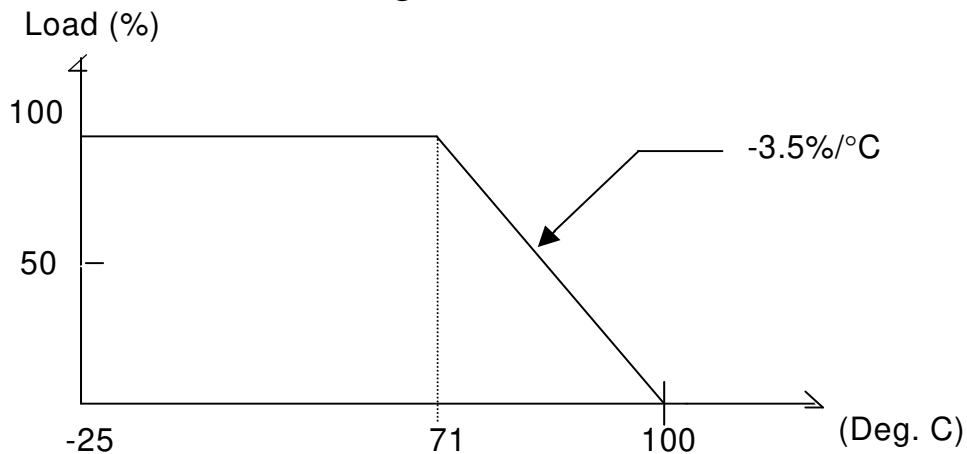
single	1 +In	2 NC	3 NC	9 NP	10 -Out	11 +Out	12,13 -In	14 +Out	15 -Out	16 NP	22 NC	23 NC	24 +In
dual	+In	-Out	GND	NP	GND	+Out	-In	+Out	GND	NP	GND	-Out	+In

Pin Belegung / Pin assignment **Option H (3kV)**

single	1 NP	2 -In	3 -In	9 NC	10 NC	11 NC	12,13 NP	14 +Out	15 NC	16 -Out	22 +In	23 +In	24 NP
dual	NP	-In	-In	GND	NC	-Out	NP	+Out	NC	GND	+In	+In	NP

NP=no pin
NC=no connection with pin
TP=test point

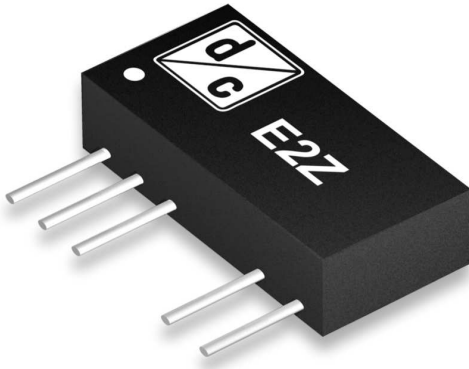
Derating Curve :



- a. Operating Temperature : -25°C to 71°C ---> without derating
- b. Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E2Z

geregelter DC/DC Wandler
regulated DC/DC converter



Weitbereichseingang 2:1
7 Pin SIL-Gehäuse
Wirkungsgrad <83%
Ausgangsleistung 2Watt
Galvanische Trennung von 1000VDC min.
Dauerhaft Kurzschlussfest
UL94-0 Gehäuse Material
Geringe Restwelligkeit

Wide range input
7-pin SIL package
Efficiency <83%
Output power 2Watt
Isolation 1000VDC min.
Continuous short circuit protection
UL94-0 Case material
Slight ripple & noise

Type	Input voltage	Output voltage	Output Current	Efficiency %	Cat. No.
E2Z12R5	9-18VDC	5VDC	400mA	73	110485
E2Z12R9	9-18VDC	9VDC	222mA	79	110486
E2Z12R12	9-18VDC	12VDC	167mA	80	110487
E2Z12R15	9-18VDC	15VDC	133mA	81	110488
E2Z24R5	18-36VDC	5VDC	400mA	74	110489
E2Z24R9	18-36VDC	9VDC	222mA	81	110490
E2Z24R12	18-36VDC	12VDC	167mA	81	110491
E2Z24R15	18-36VDC	15VDC	133mA	83	110492

DC/DC Wandler
DC/DC converter

E2Z-geregelt

Eingang *Input*

Eingang <i>Input voltage</i>	siehe Tabelle <i>see table</i>
Eingangsspannungsbereich <i>Input voltage range</i>	2:1

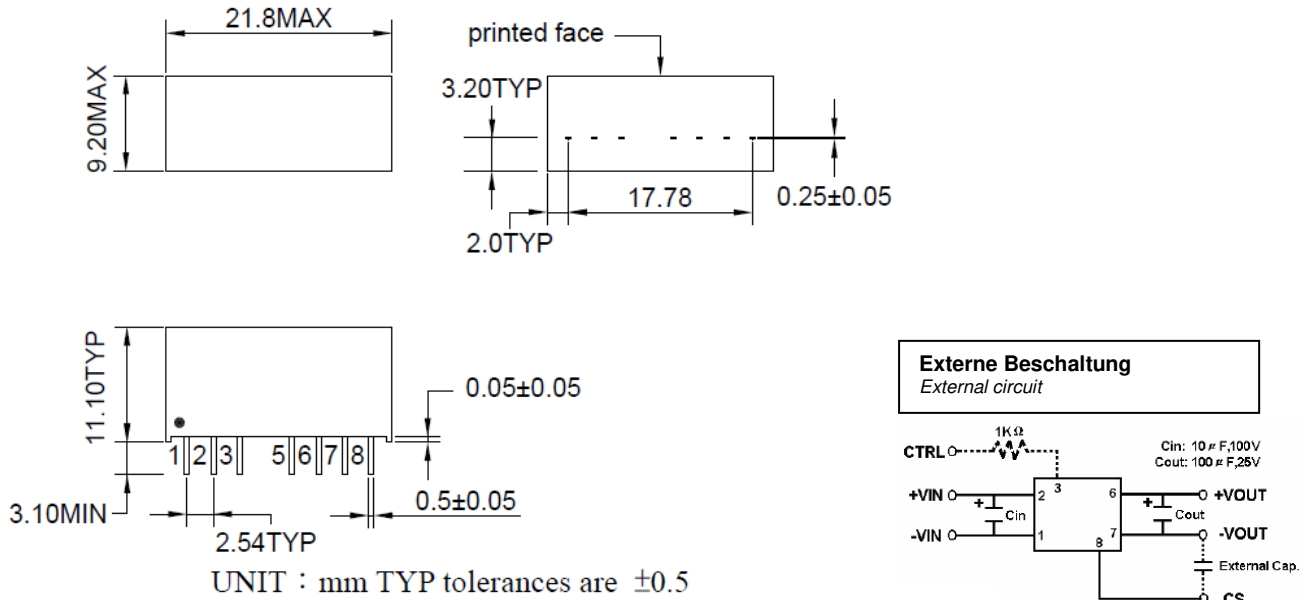
Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±3,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	0,8% Max.
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	0,5% Max.
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	Vout: 5-9VDC/ 100mVpp max. 12-15VDC/ 1% of Uout

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	-40°C bis + 85°C
Lagertemperatur <i>Storage temperature</i>	-50°C~+130°C
Schaltfrequenz <i>Switching frequency</i>	50 kHz typ.
Isolationsspannung standard <i>Isolation voltage standard</i>	1000VDC min.
Abmessungen <i>Dimensions</i>	21,8 x 9,2 x 11,1 mm (LxBxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz <i>Plastic, black</i>
Gewicht <i>Weight</i>	1 g

Abmessungen/Dimensions



PIN-Belegung/PIN assignment

1	2	3	4	5	6	7	8
-In	+In	Remote ON/OFF	No pin	NE- No external connection allowed	+ output	- output	CS Optional external capacitor

Remote ON/OFF

Funktion Remote ON/OFF (PIN 3):

ON: PIN 3 offen (high Impedance)

OFF: Durch Einspeisen eines permanenten, begrenzten Stromes von 3..7mA (max.) in den PIN 3 wird der Wandler deaktiviert. Die Stromquelle referenziert auf PIN 1 (-Input).

Strombegrenzung über einen Vorwiderstand – Berechnung des niederohmigsten Wertes: $R = U_{in} / 7mA$

Beispiel - Ausschalten des Wandlers:

PIN 2 (+ Eingangsspannung) über einen Widerstand an PIN 3 (Remote ON/OFF) legen, d.h.

z.B. +5V Spannungsquelle über einen 1 kOhm Widerstand (Strombegrenzung) mit PIN 3 verbinden

DC/DC Wandler
DC/DC converter

E2Z-geregt

Remote ON/OFF function (PIN 3):

ON: PIN 3 open (high Impedance)

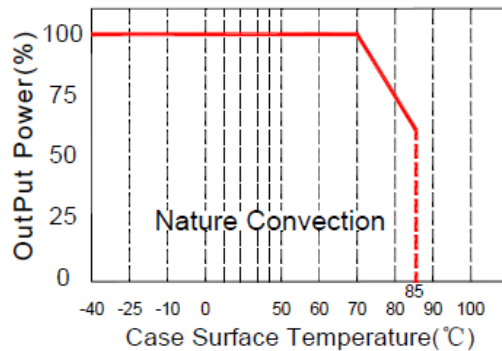
OFF: Need to supply continuously via an external current source a limited current of 3..7mA (max.) to PIN 3. Reference for the current source is PIN 1 (-Input).

Current limitation via series resistance - calculation of minimum value: $R = U_{in} / 7mA$

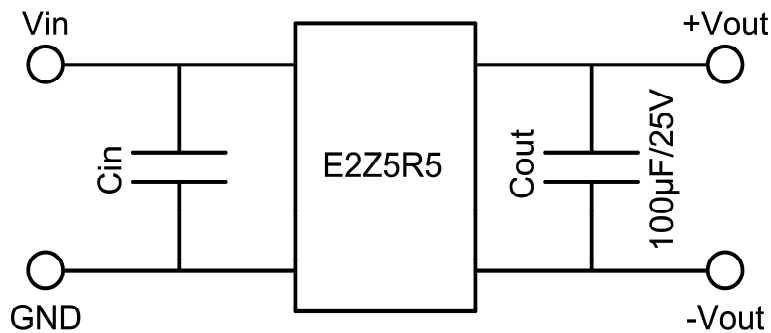
Example - switch of the DC/DC converter:

Connect PIN 2 (+ Input Voltage) via a series resistance to PIN 3 (Remote ON/OFF), e.g. connect +5V supply voltage via an 1kOhm resistance (current limit) with PIN3

Derating



Recommended Test Circuit

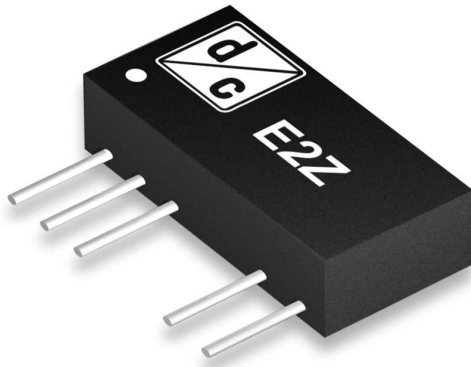


5V + 12V: $C_{in} = 100\mu F/25V$

24V + 48V: $C_{in} = 10\mu F/100V$

E2Z

ungeregelter DC/DC Wandler *unregulated DC/DC converter*



7 Pin SIL-Gehäuse
Wirkungsgrad <80%
Ausgangsleistung 2Watt
Galvanische Trennung von 1000VDC min.
Option H 3kV
Arbeitstemperatur bis +70°C
Option/1: -25°C bis +85°C
Option/2: -45°C bis +85°C

7-pin SIL package
Efficiency <80%
Output power 2Watt
Isolation 1000VDC min.
Option H 3kV
Operating temp. up to +70°C
Option/1: -25°C up to +85°C
Option/2: -45°C up to +85°C

Type	Input voltage	Output voltage	Output Current	Efficiency %	Cat. Nr.
E2Z5A5	5VDC	5VDC	400mA	65	110441
E2Z5A9	5VDC	9VDC	222mA	70	110442
E2Z5A12	5VDC	12VDC	166mA	70	110443
E2Z5A15	5VDC	15VDC	133mA	70	110444
E2Z5A5-5	5VDC	±5VDC	±200mA	70	110510
E2Z5A9-9	5VDC	±9VDC	±111mA	75	110511
E2Z5A12-12	5VDC	±12VDC	±84mA	78	110512
E2Z5A15-15	5VDC	±15VDC	±66mA	80	110513
E2Z12A5	12VDC	5VDC	400mA	65	110459
E2Z12A9	12VDC	9VDC	222mA	70	110445
E2Z12A12	12VDC	12VDC	166mA	70	110446
E2Z12A15	12VDC	15VDC	133mA	70	110440
E2Z12A5-5	12VDC	±5VDC	±200mA	70	110436
E2Z12A9-9	12VDC	±9VDC	±111mA	75	110437
E2Z12A12-12	12VDC	±12VDC	±84mA	78	110438
E2Z12A15-15	12VDC	±15VDC	±66mA	80	110439
E2Z24A5	24VDC	5VDC	400mA	65	110447
E2Z24A9	24VDC	9VDC	222mA	70	110448
E2Z24A12	24VDC	12VDC	166mA	70	110449
E2Z24A15	24VDC	15VDC	133mA	70	110450
E2Z24A5-5	24VDC	±5VDC	±200mA	70	110519
E2Z24A9-9	24VDC	±9VDC	±111mA	75	110518
E2Z24A12-12	24VDC	±12VDC	±84mA	78	110517
E2Z24A15-15	24VDC	±15VDC	±66mA	80	110516

Eingang *Input*

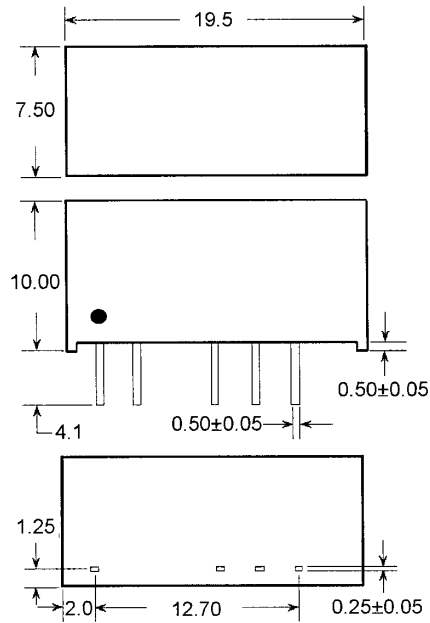
Eingang	siehe Tabelle
<i>Input voltage</i>	<i>see table</i>
Eingangsspannungsbereich	±10%
<i>Input voltage range</i>	

Ausgang *Output*

Ausgangsspannung	siehe Tabelle
<i>Output voltage</i>	<i>see table</i>
Ausgangsgenauigkeit	±5,0% max.
<i>Output accuracy</i>	
Regelabweichung bei Laständerung	±10%
<i>Load regulation</i>	
Regelabweichung bei Eingangsänderung	±1,2% .
<i>Line regulation</i>	
Restwelligkeit 20MHz	150mVpp max.
<i>Ripple & noise (p-p) 20MHz</i>	

Umgebung *Environment*

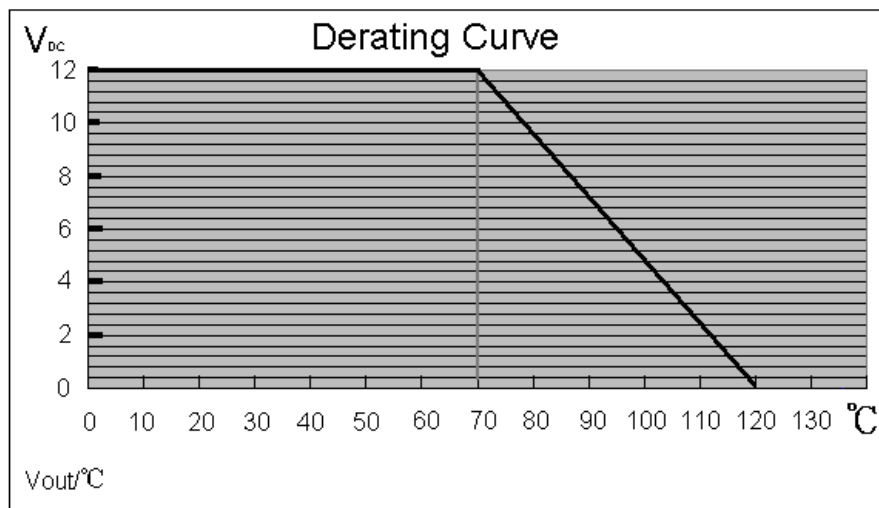
Arbeitstemperatur	0°C ~+70°C Option/1: -25°C bis +85°C Option/2: -45°C bis +85°C
<i>Ambient temperature operating</i>	
Lagertemperatur	-55°C~+100°C
<i>Storage temperature</i>	
Isolationswiderstand	1000MΩ min/ 500VDC
<i>Insulation resistance</i>	
Schaltfrequenz	75 kHz typ.
<i>Switching frequency</i>	
Isolationsspannung standard	1000VDC min.
<i>Isolation voltage standard</i>	
Abmessungen	19,5 x 7,5 x 10mm (LxBxH)
<i>Dimensions</i>	
Gehäuse, standard	Kunststoff, schwarz
<i>Case, standard</i>	<i>Plastic, black</i>
Gewicht	1 g
<i>Weight</i>	



Pin Belegung / Pin assignment

	1	2	4	5	6	7
Single/Dual	+In	-In	-Out	Common	+Out	NP

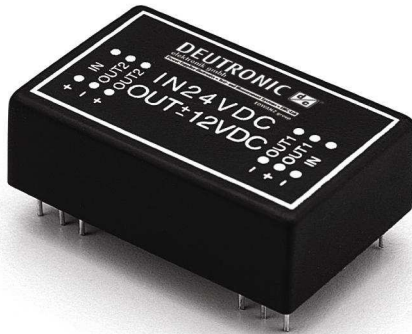
Derating



$V_{out}=12V @ 64mA$ (FIXED OUTPUT CURRENT)

E1,5C

geregelter DC/DC Wandler
regulated DC/DC converter



24-pol. DIL-Raster
PI-Eingangsfiler
Wirkungsgrad 50%
Arbeitstemperatur bis +71°C
Galvanische Trennung 500VDC min.
Option H: 3kV
Dual Version: Mindestlast ca. 10%
Optional: Bestellangaben für SMD =
Artikel oder Artikelnr./SMD

Footprint 24-pin DIL
PI-Input filter
Efficiency 50%
Operational temp. up to +71°C
Isolation 500VDC min.
Option H: 3kV
Dual version: minimal load ca. 10%
Option: Order infos for SMD= Model or Cat.-No./SMD

Type	Input voltage	Output voltage	Output current	Input current		Cat. No.
				no load	full load	
E1,5C5R5	5VDC	5VDC	300mA	110mA	620mA	110700
E1,5C5R12	5VDC	12VDC	125mA	110mA	550mA	110701
E1,5C5R15	5VDC	15VDC	100mA	110mA	550mA	110702
E1,5C5R12-12	5VDC	±12VDC	±60mA	110mA	550mA	110703
E1,5C5R15-15	5VDC	±15VDC	±50mA	110mA	550mA	110704
E1,5C12R5	12VDC	5VDC	300mA	40mA	260mA	110705
E1,5C12R12	12VDC	12VDC	125mA	40mA	215mA	110706
E1,5C12R15	12VDC	15VDC	100mA	40mA	215mA	110707
E1,5C12R12-12	12VDC	±12VDC	±60mA	40mA	215mA	110708
E1,5C12R15-15	12VDC	±15VDC	±50mA	40mA	215mA	110709
E1,5C24R5	24VDC	5VDC	300mA	20mA	130mA	110710
E1,5C24R12	24VDC	12VDC	125mA	20mA	115mA	110711
E1,5C24R15	24VDC	15VDC	100mA	20mA	115mA	110712
E1,5C24R12-12	24VDC	±12VDC	±60mA	20mA	115mA	110713
E1,5C24R15-15	24VDC	±15VDC	±50mA	20mA	115mA	110714
E1,5C28R5	28VDC	5VDC	300mA	20mA	110mA	110715
E1,5C28R12	28VDC	12VDC	125mA	20mA	100mA	110716
E1,5C28R15	28VDC	15VDC	100mA	20mA	100mA	110717
E1,5C28R12-12	28VDC	±12VDC	±60mA	20mA	100mA	110718
E1,5C28R15-15	28VDC	±15VDC	±50mA	20mA	100mA	110719
E1,5C48R5	48VDC	5VDC	300mA	15mA	65mA	110720
E1,5C48R12	48VDC	12VDC	125mA	15mA	60mA	110721
E1,5C48R15	48VDC	15VDC	100mA	15mA	60mA	110722
E1,5C48R12-12	48VDC	±12VDC	±60mA	15mA	60mA	110723
E1,5C48R15-15	48VDC	±15VDC	±50mA	15mA	60mA	110724

1. Eingang / Input

Eingang <i>Input</i>	siehe Tabelle <i>see table</i>
Eingangsspannungsbereich <i>Input voltage range</i>	±10%

2. Ausgang / Output

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±4,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	±0,5%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,3% max.
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	50mVPP max.
Mindest Last <i>Minimal load</i>	Dual Version ca. 10% <i>Dual version app. 10%</i>

3. Umgebung / Environment

Arbeitstemperatur <i>Ambient temperature operating</i>	-25°C bis +71°C ohne Derating, 71°C bis 100°C mit Derating (-3,5%/°C) <i>-25°C to +71°C without derating, 71°C to 100°C with Derating (-3,5%/°C)</i>
Lagertemperatur <i>Storage temperature</i>	-40°C~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	±0,02% / °C
Kühlung <i>Cooling</i>	Freie Konvektion <i>Free air-convection</i>
Gehäusetemperatur <i>Case temperature</i>	Kunststoff 95° C max., Kupfer 100° C max. <i>Plastic 95° C max., copper 100° C max.</i>
Filterung <i>EMI filter</i>	PI-Filter
Isolationswiderstand <i>Insulation resistance</i>	10⁹Ω
Isolationskapazität <i>Insulation capacitance</i>	30pF
Schaltfrequenz <i>Switching frequency</i>	20kHz min.
Isolationsspannung standard <i>Insulation voltage standard</i>	500VDC, min.
Isolationsspannung, Option H <i>Insulation voltage, option H</i>	3kVDC min.
Kurzschlussfestigkeit <i>Short circuit protection</i>	Kurzfristig <i>Short term</i>
Wirkungsgrad <i>Efficiency</i>	50%

Abmessungen

Dimensions

Gehäuse, standard

Case, standard

Gehäuse, Option M

Case, option M

Gewicht / weight

Montagezubehör auf Anfrage

31,8x20,3x10,2mm (BxTxH)

Kunststoff, schwarz

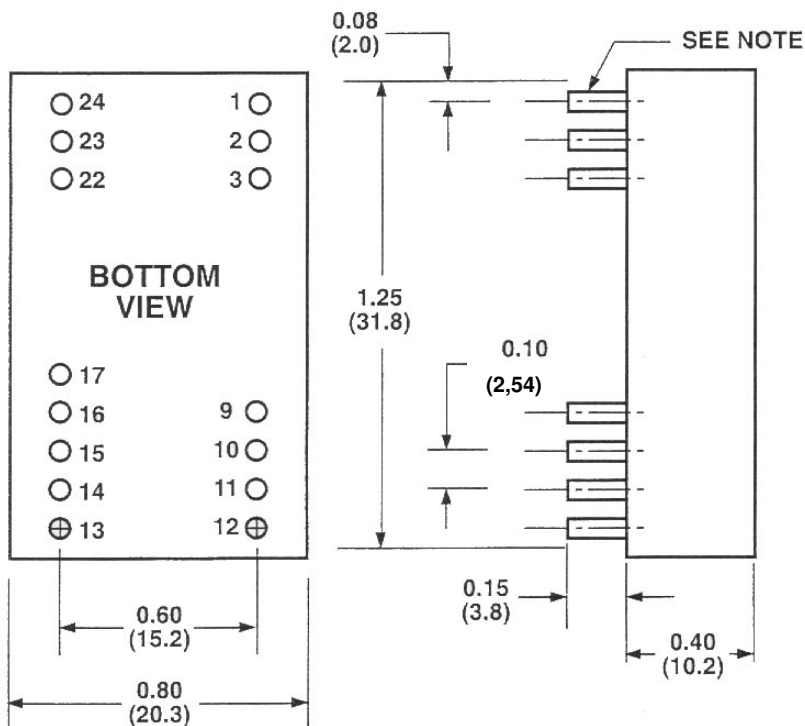
Plastic, black

Kupfer, schwarz, Bodenplatte Isolierstoff

Copper, black, non-conductive baseplate

11,4g

mounting accessories on demand



NOTE: Pin Size is .02" Inch (0.5mm) DIA

All Dimensions In Inches(mm)

Tolerance .xx= ±.02, .xxx= ±.010

DC/DC Wandler
DC/DC converter

E1,5C

Pin assignment

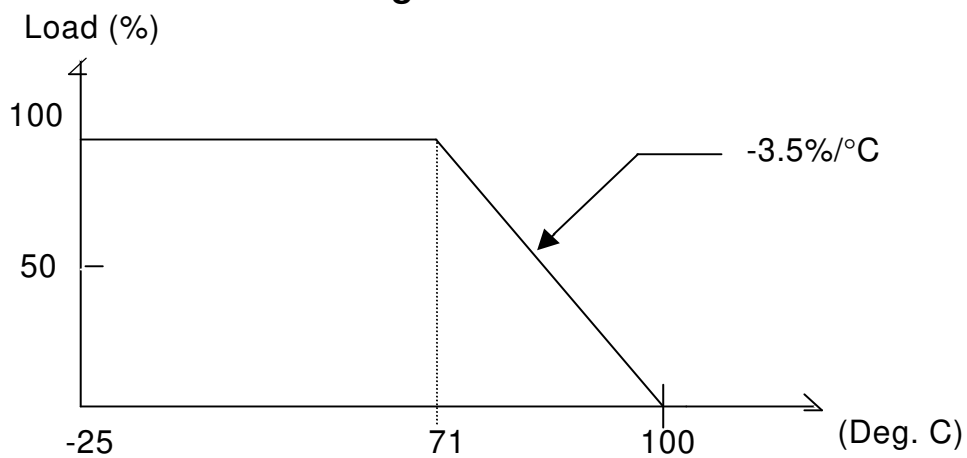
	1,24	2,23	3,22	10	11	12	13	14	15
Single	+In	NC	NC	-Out	+Out	-In	-In	+Out	-Out
Dual	+In	-Out	GND	GND	+Out	-In	-In	+Out	GND

Pin assignment Option H (3kV)

	1,2,3	22,23,24	10,11	12	13	14	15	16	17
Single	+In	-In	NP	-Out	+Out	NP	NP	NP	Internal
Dual	+In	-In	GND	Internal	-Out	NP	+Out	Internal	NP

NP=no pin
NC=no connection with pin

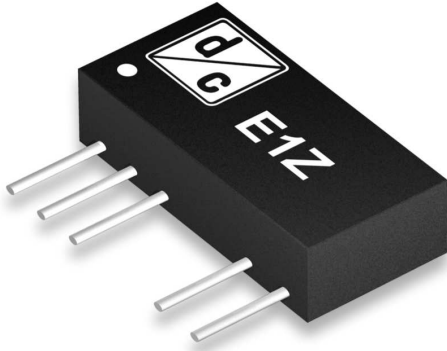
Derating Curve :



- a. Operating Temperature : -25°C to 71°C ---> without derating
- b. Operating Temperature : 71°C to 100°C ---> derating (-3.5%/°C)

E1Z

geregelter DC/DC Wandler
regulated DC/DC converter



Weitbereichseingang 2:1
7 Pin SIL-Gehäuse
Wirkungsgrad <80%
Galvanische Trennung von 1000VDC min.
Dauerhaft Kurzschlussfest
UL94-0 Gehäuse Material
Geringe Restwelligkeit

*Wide range input
7-pin SIL package
Efficiency <80%
Isolation 1000VDC min.
Continuous short circuit protection
UL94-0 Case material
Slight ripple & noise*

Type	Input Voltage	Output Voltage	Output Current	Efficiency %	Cat. No.
E1Z5R9	5-9VDC	9VDC	111mA	68	111831
E1Z5R12	5-9VDC	12VDC	83mA	69	111832
E1Z5R15	5-9VDC	15VDC	67mA	71	111833
E1Z12R5	9-18VDC	5VDC	200mA	71	111834
E1Z12R9	9-18VDC	9VDC	111mA	76	111835
E1Z12R12	9-18VDC	12VDC	83mA	78	111836
E1Z12R15	9-18VDC	15VDC	67mA	79	111837
E1Z24R5	18-36VDC	5VDC	200mA	71	111838
E1Z24R9	18-36VDC	9VDC	111mA	78	111839
E1Z24R12	18-36VDC	12VDC	83mA	79	111840
E1Z24R15	18-36VDC	15VDC	67mA	81	111841
E1Z48R5	36-72VDC	5VDC	200mA	70	111842
E1Z48R9	36-72VDC	9VDC	111mA	77	111843
E1Z48R12	36-72VDC	12VDC	83mA	79	111844
E1Z48R15	36-72VDC	15VDC	67mA	80	111845

DC/DC Wandler
DC/DC converter

E1Z-Regular

Eingang / Input

Eingang <i>Input voltage</i>	siehe Tabelle <i>see table</i>
Eingangsspannungsbereich <i>Input voltage range</i>	2:1

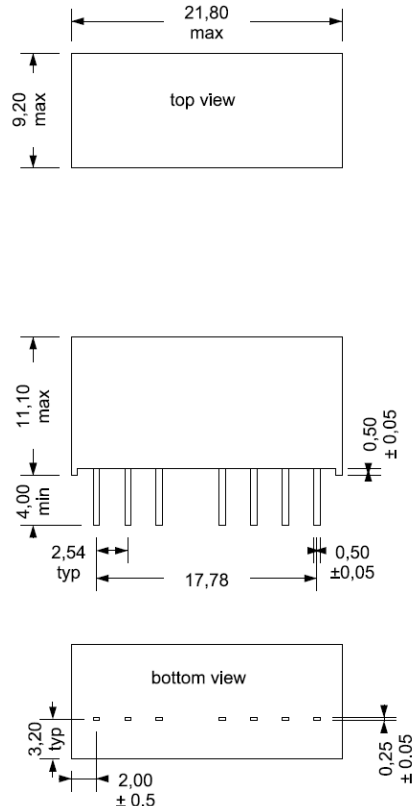
Ausgang / Output

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±3,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	±0,2%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	±0,1%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	Vout: 5-9VDC/ 100mVpp max. 12-15VDC/ 1% of Uout

Umgebung / Environment

Arbeitstemperatur <i>Ambient temperature operating</i>	-40°C bis + 85°C
Lagertemperatur <i>Storage temperature</i>	-50°C~+130°C
Schaltfrequenz <i>Switching frequency</i>	50kHz min.
Isolationsspannung standard <i>Isolation voltage standard</i>	1000VDC, min.
Abmessungen <i>Dimensions</i>	21,8 x 9,2 x 11,1 mm (BxTxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz <i>Plastic, black</i>
Gewicht <i>Weight</i>	ca. 1g

Abmessungen / Dimensions



PIN-Belegung / PIN assignment

1	2	3	4	5	6	7
-Input	+Input	Remote ON/OFF	NE- No external connection allowed	+ OUTPUT	- OUTPUT	CS Optional external capacitor

Remote ON/OFF

Funktion Remote ON/OFF (PIN 3):

ON: PIN 3 offen (high Impedance)

OFF: Durch einspeisen eines permanenten, begrenzten Stromes von 3..7mA (max.) in den PIN 3 wird der Wandler deaktiviert. Die Stromquelle referenziert auf PIN 1 (-Input).

Strombegrenzung über einen Vorwiderstand – Berechnung des niederohmigsten Wertes: $R = U_{in} / 7mA$

Beispiel - Ausschalten des Wandlers:

PIN 2 (+ Eingangsspannung) über einen Widerstand an PIN 3 (Remote ON/OFF) legen, d.h.

z.B. +5V Spannungsquelle über einen 1 kOhm Widerstand (Strombegrenzung) mit PIN 3 verbinden

Remote ON/OFF function (PIN 3):

ON: PIN 3 open (high Impedance)

OFF: Need to supply continuously via an external current source a limited current of 3..7mA (max.) to PIN 3. Reference for the current source is PIN 1 (-Input).

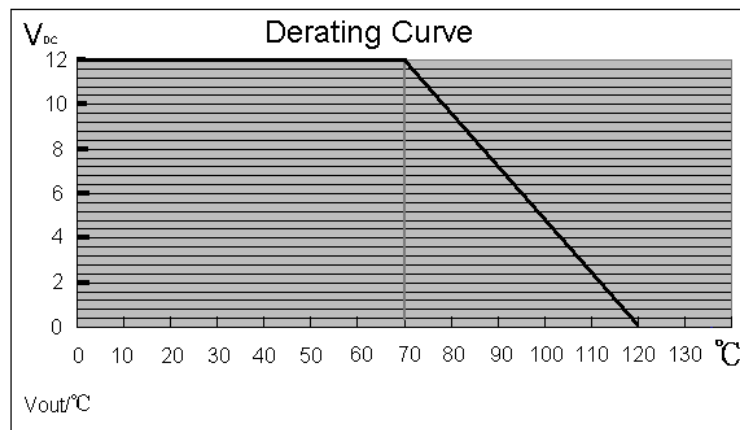
Current limitation via series resistance - calculation of minimum value: $R = U_{in} / 7mA$

Example - switch of the DC/DC converter:

Connect PIN 2 (+ Input Voltage) via a series resistance to PIN 3 (Remote ON/OFF),

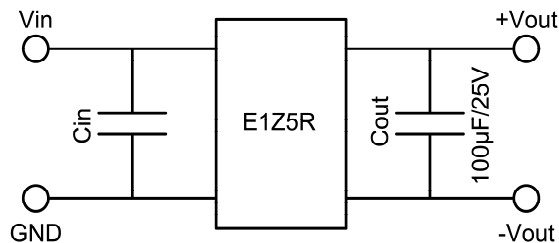
e.g. connect +5V supply voltage via an 1kOhm resistance (current limit) with PIN3

Derating



V_{out}=12V@84mA (FIXED OUTPUT CURRENT)

Recommended Test Circuit

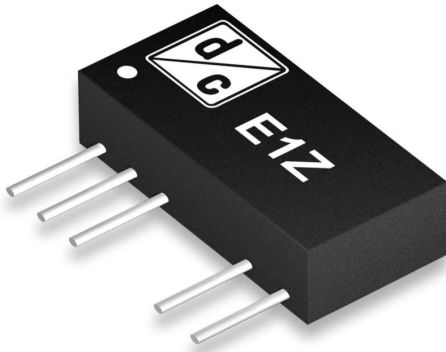


5V + 12V: Cin = 100µF/25V

24V + 48V: Cin = 10µF/100V

E1Z

ungeregelter DC/DC Wandler
unregulated DC/DC converter



7 Pin SIL-Gehäuse

Wirkungsgrad <75%, Option H 70%typ.

Galvanische Trennung von 1000VDC min.

Option H: 3kV

Arbeitstemperatur bis +70°C

Option/1: -25°C bis +85°C

Option/2: -45°C bis +85°C

UL 94V – O Package Material

7-pin SIL package

Efficiency <75%, Option H 70 %typ.

Isolation 1000VDC min.

Option H: 3kV

Operating temp. up to +70°C

Option/1: -25°C up to +85°C

Option/2: -45°C up to +85°C

UL 94V – O package material

Type	Input voltage	Output voltage	Output current	Efficiency %	Cat. No.
E1Z5A5	5VDC	5VDC	200mA	70	110540
E1Z5A9	5VDC	9VDC	112mA	75	110541
E1Z5A12	5VDC	12VDC	84mA	75	110542
E1Z5A15	5VDC	15VDC	67mA	75	110543
E1Z5A5-5	5VDC	±5VDC	±100mA	70	110544
E1Z5A9-9	5VDC	±9VDC	±56mA	75	110545
E1Z5A12-12	5VDC	±12VDC	±42mA	75	110546
E1Z5A15-15	5VDC	±15VDC	±34mA	75	110547
E1Z12A5	12VDC	5VDC	200mA	70	110548
E1Z12A9	12VDC	9VDC	112mA	75	110549
E1Z12A12	12VDC	12VDC	84mA	75	110550
E1Z12A15	12VDC	15VDC	67mA	75	110551
E1Z12A5-5	12VDC	±5VDC	±100mA	70	110552
E1Z12A9-9	12VDC	±9VDC	±56mA	75	110553
E1Z12A12-12	12VDC	±12VDC	±42mA	75	110554
E1Z12A15-15	12VDC	±15VDC	±34mA	75	110555
E1Z24A5	24VDC	5VDC	200mA	70	110556
E1Z24A9	24VDC	9VDC	112mA	75	110557
E1Z24A12	24VDC	12VDC	84mA	75	110558
E1Z24A15	24VDC	15VDC	67mA	75	110559
E1Z24A5-5	24VDC	±5VDC	±100mA	70	110560
E1Z24A9-9	24VDC	±9VDC	±56mA	75	110561
E1Z24A12-12	24VDC	±12VDC	±42mA	75	110562
E1Z24A15-15	24VDC	±15VDC	±34mA	75	110563

1. Eingang / Input

Eingang <i>Input voltage</i>	siehe Tabelle <i>see table</i>
Eingangsspannungsbereich <i>Input voltage range</i>	±10%
Eingangsspannungsbereich Option H3 <i>Input voltage range Option H3</i>	±5%

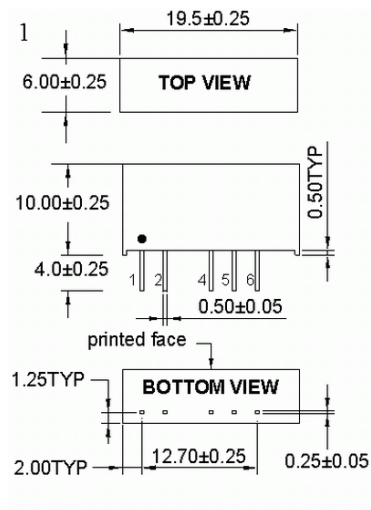
2. Ausgang / Output

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
Ausgangsgenauigkeit <i>Output accuracy</i>	±5,0% max.
Regelabweichung bei Laständerung <i>Load regulation</i>	±10%, 5V 15%
Regelabweichung bei Eingangsänderung <i>Line regulation</i>	1,2%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	100mVppmax.
Restwelligkeit 20MHz Option H3 <i>Ripple & noise (p-p) 20MHz Option H3</i>	150mVpp.
Mindestlast <i>Minimal load</i>	Dual Version: ca. 10% Dual Version: ca. 10%

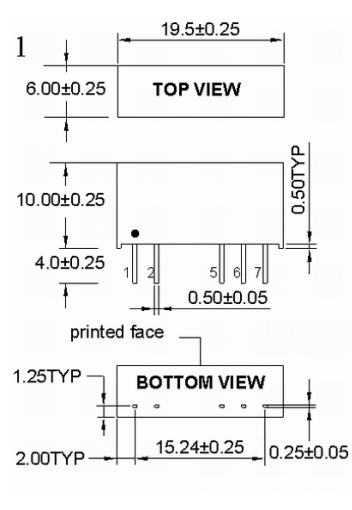
3. Umgebung / Environment

Arbeitstemperatur <i>Ambient temperature operating</i>	0°C ~+70°C Option/1: -25°C bis +85°C Option/2: -45°C bis +85°C
Lagertemperatur <i>Storage temperature</i>	-55°C~+100°C
Isolationswiderstand <i>Isolation resistance</i>	1000MΩ min.
Schaltfrequenz <i>Switching frequency</i>	100kHz min.
Isolationsspannung standard <i>Isolation voltage standard</i>	1000VDC, min.
Isolationsspannung, Option H3 <i>Isolation voltage, option H3</i>	3000VDC, min.
Abmessungen <i>Dimensions</i>	19,5 x 6 x 10mm (BxTxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz <i>Plastic, black</i>
Gewicht <i>Weight</i>	ca. 1g

Single/Dual (1000VDC)



Single/Dual (3000VDC)

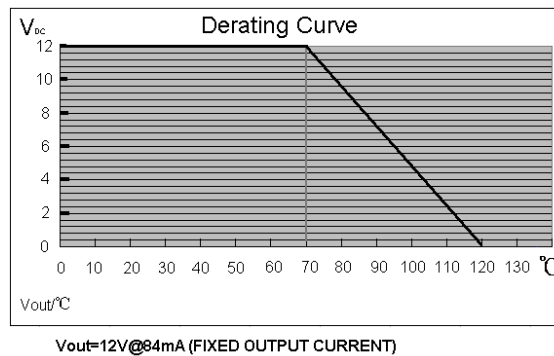


Pin Belegung / Pin assignment

	1	2	3	4	5	6	7
1000VDC/single	+In	-In	NP	-Out	NC	+Out	NP
1000VDC/dual	+In	-In	NP	-Out	Common	+Out	NP

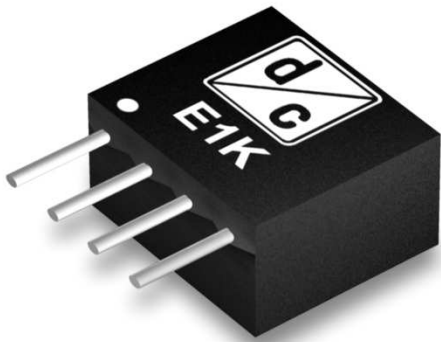
	1	2	3	4	5	6	7
3000VDC/single	+In	-In	NP	NP	-Out	NC	+Out
3000VDC/dual	+In	-In	NP	NP	-Out	Common	+Out

Derating



E1K

ungeregelter DC/DC Wandler
unregulated DC/DC converter



4 Pin SIL-Gehäuse
 Hoher Wirkungsgrad
 Galvanische Trennung 1000VDC min.
 Arbeitstemperatur bis +70°C
 Option/1: -25°C bis +85°C
 Option/2: -45°C bis +85°C
 UL 94V-0 Package Material

*4-pin SIL package
 High efficiency
 Isolation 1000VDC min.
 Operating temp. up to +70°C
 Option/1: -25°C up to +85°C
 Option/2: -45°C up to +85°C*

UL 94V-0 Package Material

Type	Input voltage	Output voltage	Output Current	Cat.Nr.
E1K5A5	5VDC	5VDC	200mA	110521
E1K5A9	5VDC	9VDC	111mA	110522
E1K5A12	5VDC	12VDC	84mA	110523
E1K5A15	5VDC	15VDC	68mA	110524
E1K12A5	12VDC	5VDC	200mA	110525
E1K12A9	12VDC	9VDC	111mA	110526
E1K12A12	12VDC	12VDC	84mA	110527
E1K12A15	12VDC	15VDC	68mA	110528
E1K24A5	24VDC	5VDC	200mA	110529
E1K24A9	24VDC	9VDC	111mA	110530
E1K24A12	24VDC	12VDC	84mA	110531
E1K24A15	24VDC	15VDC	68mA	110532

Eingang *Input*

Eingangsspannung <i>Input voltage</i>	siehe Tabelle, Toleranz $\pm 5\%$ <i>see table, tolerance $\pm 5\%$</i>
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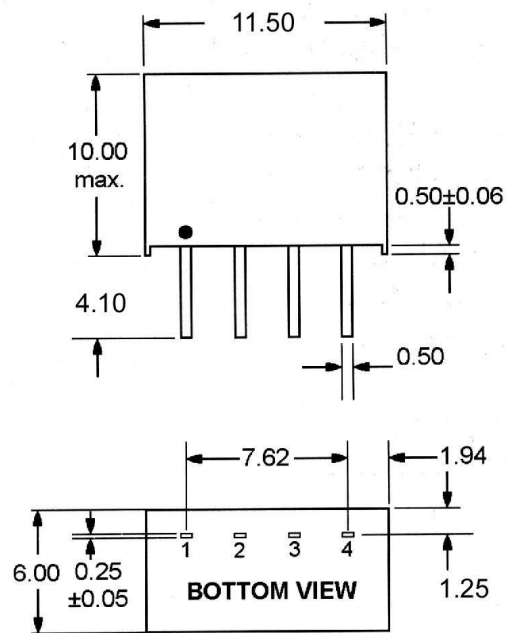
Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle, Toleranz $\pm 5\%$ (gültig bei 50% Nominal-Last) <i>see table, tolerance $\pm 5\%$ (valid at 50% nominal load)</i>
Regelabweichung bei Laständerung <i>Load regulation</i>	$\pm 10\%$ (gültig bei 10% - 100% Nominal-Last) bei 3.3V und 5V Ausgang typ. 15% $\pm 10\%$ (10% to 100% full load) 3.3 and 5V output typ. 15%
Regelabweichung bei Eingangsspannungsänderung <i>Line regulation</i>	$\pm 10\%$ max. (gültig bei 10% - 100% bei Nominal-Last) bei 3.3V und 5V Ausgang typ. 15% $\pm 10\%$ (10% to 100% full load) 3.3 and 5V output typ. 15%
Restwelligkeit 20MHz <i>Ripple & noise (p-p) 20MHz</i>	150mVpp max.

Umgebung *Environment*

Arbeitstemperatur <i>Ambient temperature operating</i>	0°C ~+70°C Option/1: -25°C bis +85°C Option/2: -45°C bis +85°C
Lagertemperatur <i>Storage temperature</i>	-55°C ~+100°C
Temperaturkoeffizient <i>Temperature coefficient</i>	$\pm 0,03\%$ / °C
Filterung <i>EMI filter</i>	Kondensator <i>Capacitor type</i>
Isolationswiderstand <i>Insulation resistance</i>	1000M Ω min./ 500VDC
Schaltfrequenz <i>Switching frequency</i>	100kHz
Isolationsspannung <i>Isolation voltage</i>	1000VDC, min.
Abmessungen <i>Dimensions</i>	11,5 x 6 x 10mm (BxTxH)
Gehäuse, standard <i>Case, standard</i>	Kunststoff, schwarz <i>Plastic, black</i>
Gewicht <i>Weight</i>	1,49g

CASE "K"

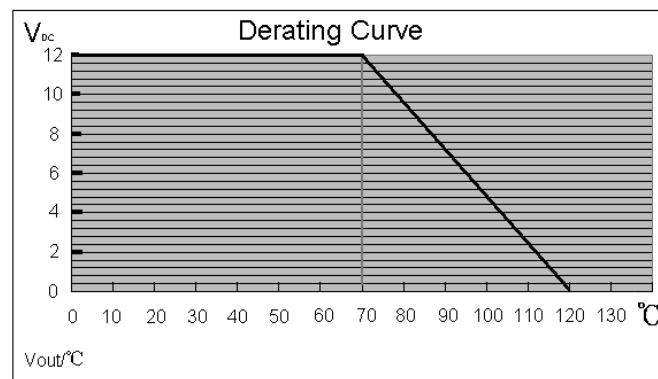


All Dimensions in mm

Pinbelegung/ pin connection

1	2	3	4
-IN	+IN	-OUT	+OUT

Derating



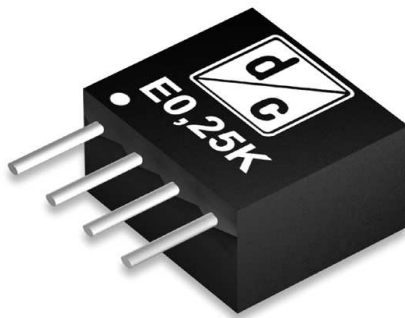
$V_{out}=12V@84mA$ (FIXED OUTPUT CURRENT)

DC/DC Wandler
DC/DC converter

E1K

E0,25K

ungeregelter DC/DC Wandler
unregulated DC/DC converter



4 Pin SIL-Gehäuse
Hoher Wirkungsgrad
Isolation 1000VDC min.
Arbeitstemperatur bis +70°C
 Option/1: -25°C bis +85°C
 Option/2: -45°C bis +85°C
UL 94V-0 Package Material

4-pin SIL package
High efficiency
Output power 0,25Watt
Isolation 1000VDC
Operating temp. up to +70°C
 Option/1: -25°C up to +85°C
 Option/2: -45°C up to +85°C
UL 94 V-0 Package Material

Type	Input voltage	Output voltage	Output Current	Efficiency	Cat. Nr.
E0,25K5A5	5VDC	5VDC	50mA	65%	110570
E0,25K5A9	5VDC	9VDC	27mA	65%	110571
E0,25K5A12	5VDC	12VDC	21mA	68%	110572
E0,25K5A15	5VDC	15VDC	17mA	70%	110573
E0,25K12A5	12VDC	5VDC	50mA	65%	110574
E0,25K12A9	12VDC	9VDC	27mA	65%	110575
E0,25K12A12	12VDC	12VDC	21mA	68%	110576
E0,25K12A15	12VDC	15VDC	17mA	70%	110577
E0,25K24A5	24VDC	5VDC	50mA	65%	110578
E0,25K24A9	24VDC	9VDC	27mA	65%	110579
E0,25K24A12	24VDC	12VDC	21mA	68%	110580
E0,25K24A15	24VDC	15VDC	17mA	70%	110581

Eingang *Input*

Eingangsspannungsbereich <i>Input voltage range</i>	siehe Tabelle <i>see table</i>
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Ausgang *Output*

Ausgangsspannung <i>Output voltage</i>	siehe Tabelle <i>see table</i>
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Ausgangsgenauigkeit <i>Output accuracy</i>	±5,0% max.
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Regelabweichung bei Laständerung	±10%
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Load regulation

Regelabweichung bei Eingangsänderung	±1,2% max.
---	-------------------

Line regulation

Restwelligkeit 20MHz	100mVpp max.
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Ripple & noise (p-p) 20MHz

Umgebung *Environment*

Arbeitstemperatur	0°C ~+70°C Option/1: -25°C bis +85°C Option/2: -45°C bis +85°C
--------------------------	--

Ambient temperature operating

Lagertemperatur	-40°C~+100°C
------------------------	---------------------

Storage temperature

Temperaturkoeffizient	±0,03% / °C
------------------------------	--------------------

Temperature coefficient

Filterung

EMI filter

Kondensator

Capacitor type

Isolationswiderstand

1000MΩ min./ 500VDC

Insulation resistance

Schaltfrequenz

100kHz

Switching frequency

Isolationsspannung

1000VDC, min.

Insulation voltage

Abmessungen

11,5 x 6 x 10mm (BxTxH)

Dimensions

Gehäuse, standard

Kunststoff, schwarz

Case, standard

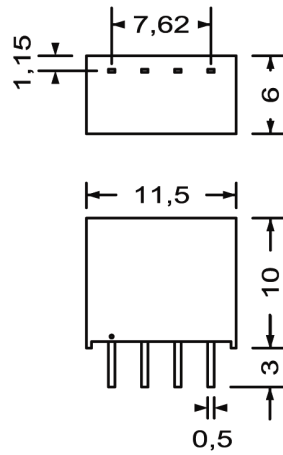
Plastic, black

Gewicht

1,4g

Weight

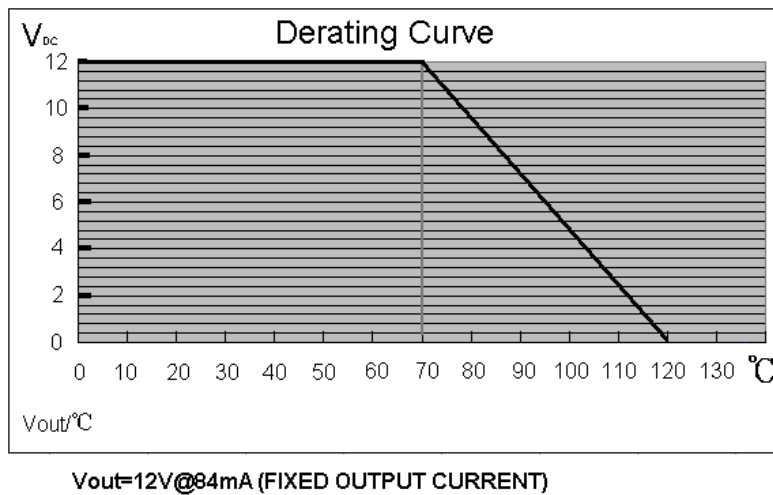
Sicht von unten
Bottom view



Pin Belegung / Pin assignment

1	2	3	4
-In	+In	-Out	+Out

Derating



DC/DC Wandler
DC/DC converter

E0,25K

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