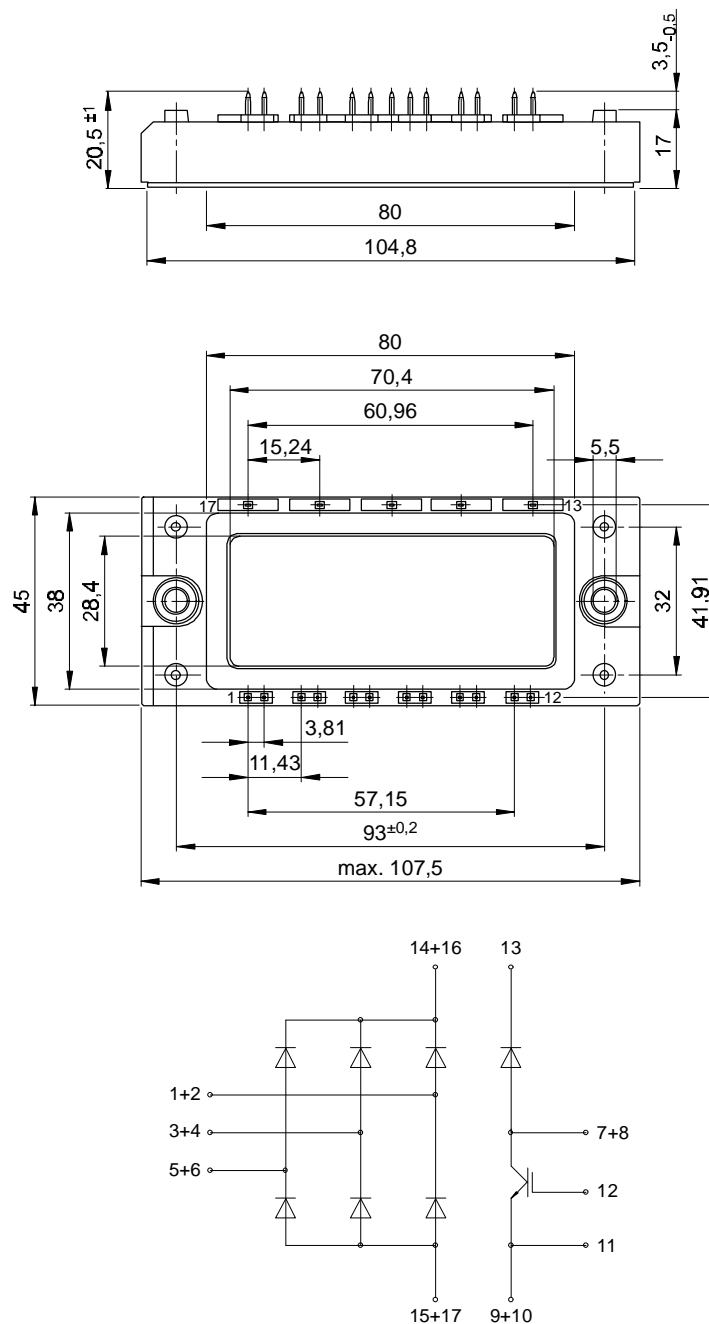




European Power-Semiconductor and Electronics Company

Marketing Information

DD B6U 84 N 12...16 RR



DD B6U 84 N 10...16 (ECONO)

Elektrische Eigenschaften / Electrical properties

Höchstzulässige Werte / Maximum rated values

Periodische Spitzensperrspannung repetitive peak reverse voltage	$T_{vj} = -40^{\circ}\text{C} \dots T_{vj\text{max}}$	V_{RRM}	1000, 1200 V 1400, 1600 V
Stoßspitzensperrspannung non-repetitive peak reverse voltage	$T_{vj} = +25^{\circ}\text{C} \dots T_{vj\text{max}}$	V_{RSM}	1100, 1300 V 1500, 1700 V
Durchlaßstrom-Grenzeffektivwert (pro Element) RMS forward current (per chip)		I_{FRMSM}	60 A
Ausgangsstrom output current	$T_C = 100^{\circ}\text{C}$ $T_C = 84^{\circ}\text{C}$ $T_A = 45^{\circ}\text{C}, \text{KP } 0,5 \text{ S}$ $T_A = 45^{\circ}\text{C}, \text{KP } 0,33 \text{ S}$ $T_A = 35^{\circ}\text{C}, \text{KP } 0,41 \text{ S } (V_L = 45\text{l/s})$ $T_A = 35^{\circ}\text{C}, \text{KP } 0,33 \text{ S } (V_L = 90\text{l/s})$	I_d	85 A 104 A 58 A 75 A 104 A 104 A
Stoßstrom-Grenzwert surge forward current	$T_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$ $T_{vj} = T_{vj\text{max}}, t_p = 10\text{ms}$	I_{FSM}	650 A 550 A
Grenzlastintegral I^2t -value	$T_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$ $T_{vj} = T_{vj\text{max}}, t_p = 10\text{ms}$	I^2t	2100 A ² s 1500 A ² s

Charakteristische Werte / Characteristic values

Durchlaßspannung forward voltage	$T_{vj} = T_{vj\text{max}}, I_F = 100\text{A}$	V_F	max. 1,55 V
Schleusenspannung threshold voltage	$T_{vj} = T_{vj\text{max}}$	$V_{(TO)}$	0,75 V
Ersatzwiderstand forward slope resistance	$T_{vj} = T_{vj\text{max}}$	r_T	5,5 m Ω
Sperrstrom reverse current	$T_{vj} = T_{vj\text{max}}, V_R = V_{RRM}$	i_R	max. 5 mA
Isolations-Prüfspannung insulation test voltage	RMS, f = 50Hz, t = 1min RMS, f = 50Hz, t = 1sec	V_{ISOL}	2,5 kV 3,0 kV

Thermische Eigenschaften / Thermal properties

Innerer Wärmewiderstand thermal resistance, junction to case	pro Modul / per module, $\Theta = 120^{\circ}\text{rect}$ pro Element / per chip, $\Theta = 120^{\circ}\text{rect}$ pro Modul / per module, DC pro Element / per chip, DC	$R_{th,IC}$	max. 0,241 $^{\circ}\text{C/W}$ max. 1,450 $^{\circ}\text{C/W}$ max. 0,183 $^{\circ}\text{C/W}$ max. 1,100 $^{\circ}\text{C/W}$
Übergangs-Wärmewiderstand thermal resistance, case to heatsink	pro Modul / per module pro Element / per chip	$R_{th,CK}$	max. 0,033 $^{\circ}\text{C/W}$ max. 0,200 $^{\circ}\text{C/W}$
Höchstzul. Sperrschichttemp. max. junction temperature		$T_{vj\text{max}}$	150 $^{\circ}\text{C}$
Betriebstemperatur operating temperature		$T_{C,op}$	- 40...+150 $^{\circ}\text{C}$
Lagertemperatur storage temperature		T_{sto}	- 40...+150 $^{\circ}\text{C}$

Mechanische Eigenschaften / Mechanical properties

Gehäuse, siehe Anlage case, see appendix			
Si-Elemente mit Lötkontakt, glaspassiviert Si-pellets with soldered contact, glass-passivated			
Innere Isolation internal insulation			Al ₂ O ₃
Drehmom.f.mech. Befest. mounting torque	Toleranz / tolerance $\pm 15\%$	M1	4 Nm
Drehmom. f. el. Anschlüsse terminal connection torque		G	typ. 185 g
Gewicht weight			12,5 mm
Kriechstrecke creepage distance	f = 50Hz		50 m/s ²
Schwingfestigkeit vibration resistance	f = 50Hz		50 m/s ²

Kühlkörper / heatsinks :

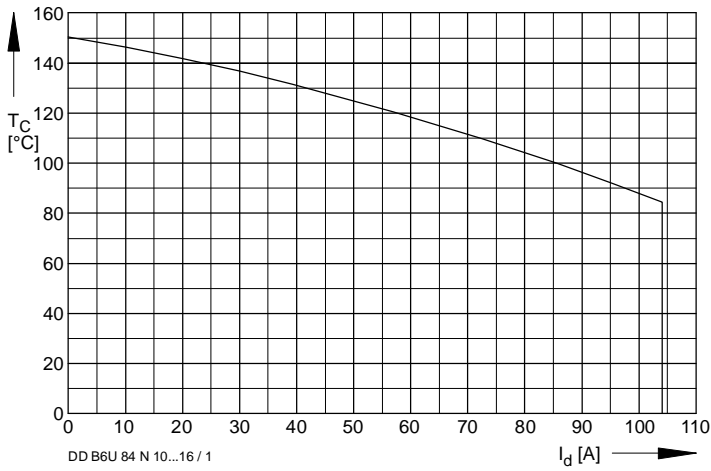


Bild / Fig. 1
 Höchstzulässige Gehäusetemperatur / Maximum allowable case temperature
 $T_C = f(I_d)$

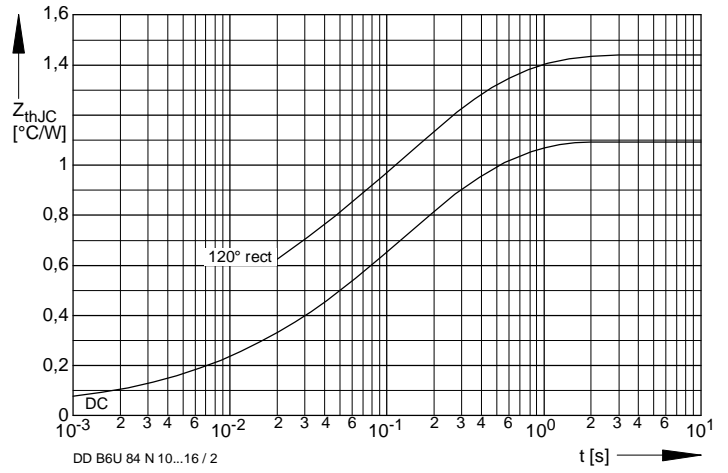


Bild / Fig. 2
 Transienter innerer Wärmewiderstand je Zweig / Transient thermal impedance per arm
 $Z_{thJC} = f(t)$
 Parameter: Stromflußwinkel / current conduction angle θ

Analytische Elemente des transienten Wärmewiderstandes Z_{thJC} pro Zweig für DC
 Analytical elements of transient thermal impedance Z_{thJC} per arm for DC

Pos. n	1	2	3	4
R_{thn} [°C/W]	0,60300	0,35000	0,06700	0,08400
τ_n [s]	0,30200	0,03780	0,00400	0,00109

Analytische Funktion / Analytical function:

$$Z_{thJC} = \sum_{n=1}^{n_{max}} R_{thn} (1 - e^{-\frac{t}{\tau_n}})$$