

Vorläufige Daten
preliminary data

Diode-Wechselrichter/diode-inverter
Höchstzulässige Werte/maximum rated values

Periodische Spitzensperrspannung repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = -25^{\circ}\text{C}$	V_{RRM}	3300 3300	V
Dauergleichstrom DC forward current		I_F	400	A
Periodischer Spitzenstrom repetitive peak forward current	$t_P = 1 \text{ ms}$	I_{FRM}	800	A
Grenzlastintegral I^2t - value	$V_R = 0 \text{ V}, t_P = 10 \text{ ms}, T_{vj} = 125^{\circ}\text{C}$	I^2t	55,5	kA^2s
Spitzenverlustleistung maximum power dissipation	$T_{vj} = 125^{\circ}\text{C}$	P_{RQM}	800	kW
Mindesteinschaltdauer minimum turn-on time		$t_{Fon \text{ min}}$	10,0	μs

Charakteristische Werte/characteristic values

			min.	typ.	max.	
Durchlassspannung forward voltage	$I_F = 400 \text{ A}, V_{GE} = 0 \text{ V}, T_{vj} = 25^{\circ}\text{C}$	V_F		2,80	3,50	V
	$I_F = 400 \text{ A}, V_{GE} = 0 \text{ V}, T_{vj} = 125^{\circ}\text{C}$			2,80	3,50	V
Rückstromspitze peak reverse recovery current	$I_F = 400 \text{ A}, -di_F/dt = 2200 \text{ A}/\mu\text{s}$	I_{RM}		550		A
	$V_R = 1800 \text{ V}, V_{GE} = -15 \text{ V}, T_{vj} = 25^{\circ}\text{C}$ $V_R = 1800 \text{ V}, V_{GE} = -15 \text{ V}, T_{vj} = 125^{\circ}\text{C}$			650		A
Sperrverzögerungsladung recovered charge	$I_F = 400 \text{ A}, -di_F/dt = 2200 \text{ A}/\mu\text{s}$	Q_r		235		μC
	$V_R = 1800 \text{ V}, V_{GE} = -15 \text{ V}, T_{vj} = 25^{\circ}\text{C}$ $V_R = 1800 \text{ V}, V_{GE} = -15 \text{ V}, T_{vj} = 125^{\circ}\text{C}$			440		μC
Abschaltenergie pro Puls reverse recovery energy	$I_F = 400 \text{ A}, -di_F/dt = 2200 \text{ A}/\mu\text{s}$	E_{rec}		245		mJ
	$V_R = 1800 \text{ V}, V_{GE} = -15 \text{ V}, T_{vj} = 25^{\circ}\text{C}$ $V_R = 1800 \text{ V}, V_{GE} = -15 \text{ V}, T_{vj} = 125^{\circ}\text{C}$			515		mJ
Innerer Wärmewiderstand thermal resistance, junction to case	pro Diode per diode	R_{thJC}			51,0	K/kW
Übergangs-Wärmewiderstand thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{\text{Paste}} = 1 \text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{\text{grease}} = 1 \text{ W}/(\text{m}\cdot\text{K})$	R_{thCH}		12,0		K/kW

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Technische Information/technical information

IGBT-Module
IGBT-modules

DD400S33K2C



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Modul/module

Isolations-Prüfspannung insulation test voltage	RMS, f = 50 Hz, t = 1 min.	V _{ISOL}	6,0		kV
Teilentladungs Aussetzspannung partial discharge extinction voltage	RMS, f = 50 Hz, Q _{PD} ≤ 10 pC (acc. to IEC 1287)	V _{ISOL}	2,6		kV
Kollektor-Emitter-Gleichsperrspannung DC stability	T _{vj} = 25°C, 100 fit	V _{CE D}	1800		V
Material Modulgrundplatte material of module baseplate			AlSiC		
Material für innere Isolation material for internal insulation			AlN		
Kriechstrecke creepage distance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		32,0 32,0		mm
Luftstrecke clearance distance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		19,0 19,0		mm
Vergleichszahl der Kriechwegbildung comparative tracking index		CTI	> 400		
			min.	typ.	max.
Übergangs-Wärmewiderstand thermal resistance, case to heatsink	pro Modul / per module λ _{Paste} = 1 W/(m·K) / λ _{grease} = 1 W/(m·K)	R _{thCH}	6,00		K/kW
Modulinduktivität stray inductance module		L _{sCE}	25		nH
Modulleitungswiderstand, Anschlüsse - Chip module lead resistance, terminals - chip	T _C = 25°C, pro Zweig / per arm	R _{CC+EE'}	0,39		mΩ
Höchstzulässige Sperrschichttemperatur maximum junction temperature		T _{vj max}			150 °C
Temperatur im Schaltbetrieb temperature under switching conditions		T _{vj op}	-40		125 °C
Lagertemperatur storage temperature		T _{stg}	-40		125 °C
Anzugsdrehmoment f. mech. Befestigung mounting torque	Schraube / screw M6	M	4,25	-	5,75 Nm
Anzugsdrehmoment f. elektr. Anschlüsse terminal connection torque	Schraube / screw M4 Schraube / screw M8	M	1,8 8,0	- -	2,1 10 Nm
Gewicht weight		G	1000		g

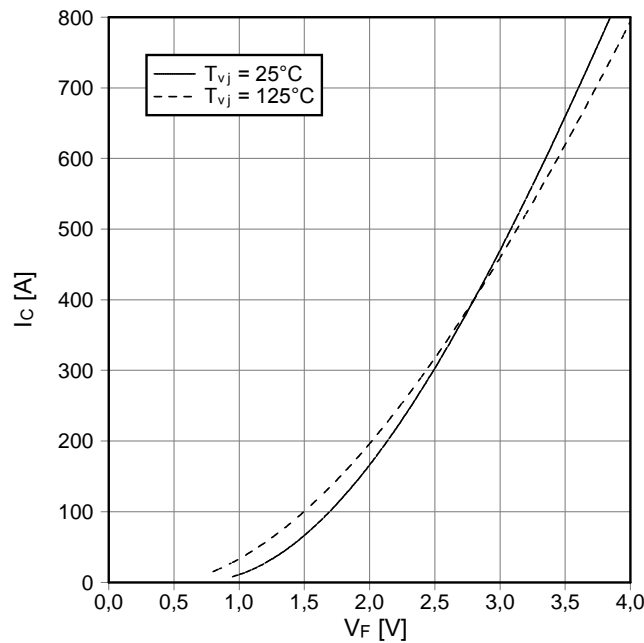
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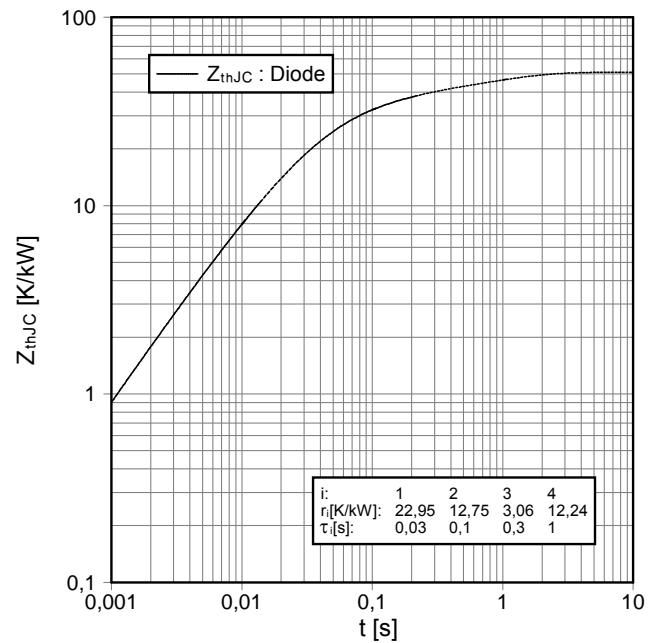
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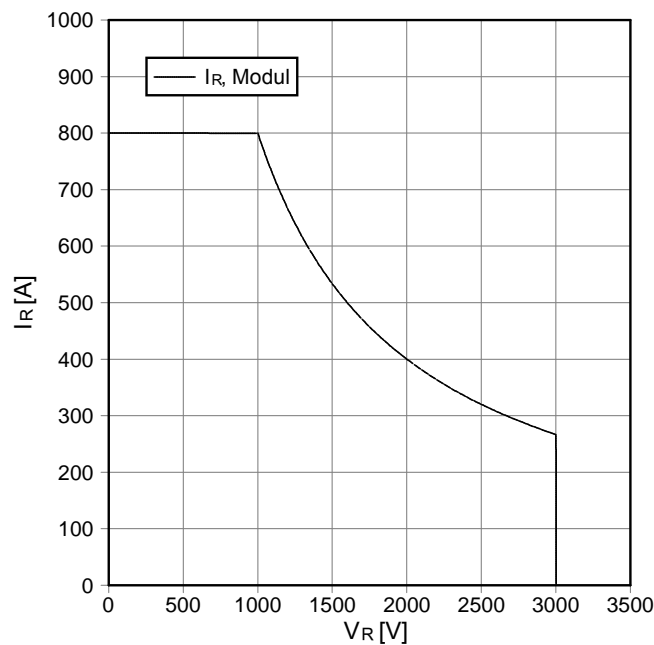
Durchlaßkennlinie der Diode-Wechselr. (typisch)
forward characteristic of diode-inverter (typical)
 $I_F = f(V_F)$



Transienter Wärmewiderstand Diode-Wechselr.
transient thermal impedance diode-inverter
 $Z_{thJC} = f(t)$

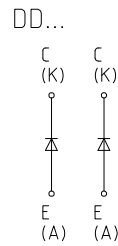


Sicherer Arbeitsbereich Diode-Wechselr. (SOA)
safe operation area diode-inverter (SOA)
 $I_R = f(V_R)$
 $T_{vj} = 125^\circ\text{C}$

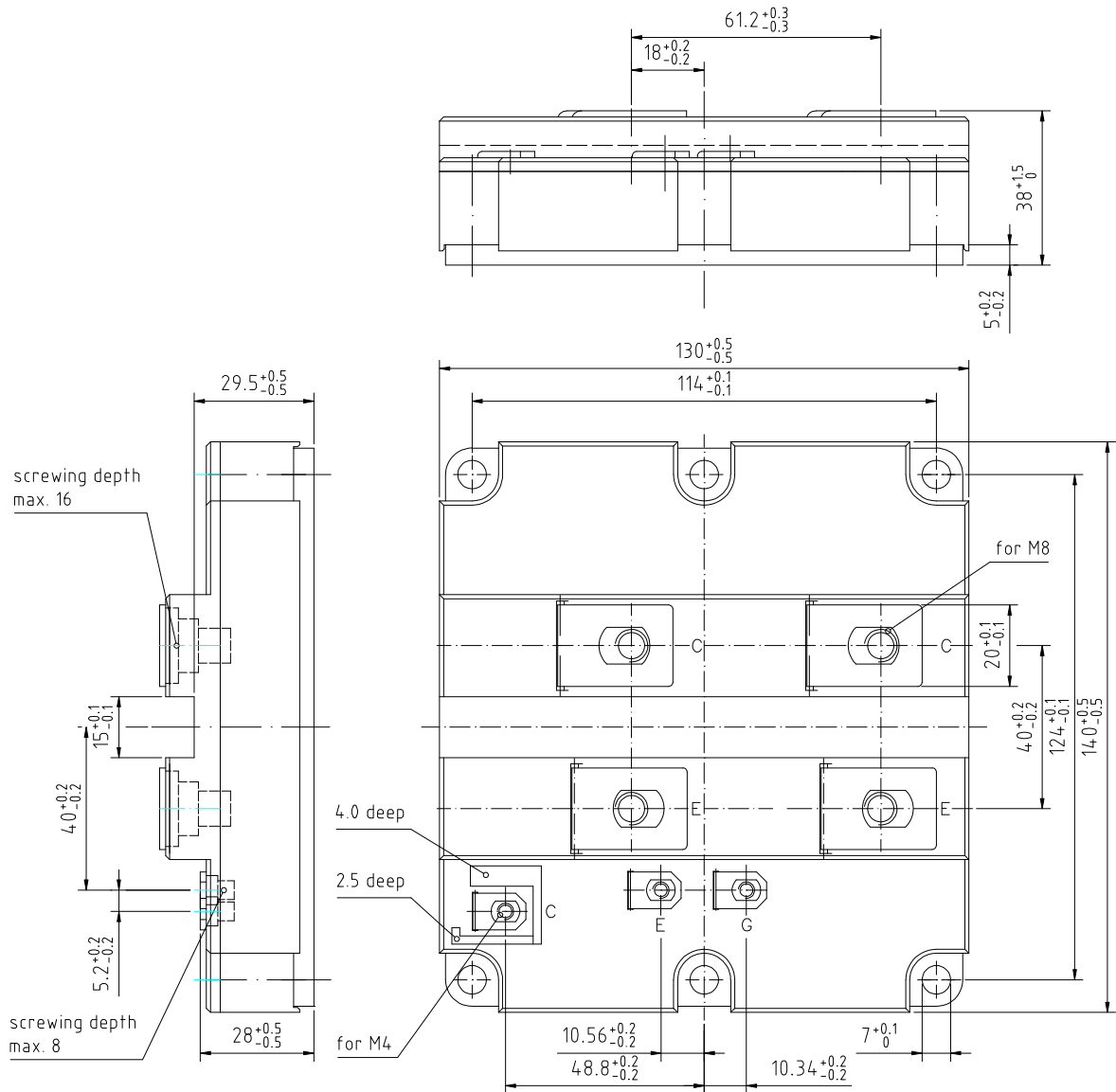


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Schaltplan/circuit diagram



Gehäuseabmessungen/package outlines



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