



**Vorläufige Daten
Preliminary Data**

**Diode, Wechselrichter / Diode, Inverter
Höchstzulässige Werte / Maximum Rated Values**

Periodische Spitzensperrspannung Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	600	V
Dauergleichstrom Continuous DC forward current		I_F	75	A
Periodischer Spitzenstrom Repetitive peak forward current	$t_P = 1\text{ ms}$	I_{FRM}	150	A
Grenzlastintegral I^2t - value	$V_R = 0\text{ V}, t_P = 10\text{ ms}, T_{vj} = 125^{\circ}\text{C}$ $V_R = 0\text{ V}, t_P = 10\text{ ms}, T_{vj} = 150^{\circ}\text{C}$	I^2t	660 610	A^2s A^2s

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	$I_F = 75\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 75\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 75\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F	1,55 1,50 1,45	1,95	V V V
Rückstromspitze Peak reverse recovery current	$I_F = 75\text{ A}, -di_F/dt = 4000\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}	100 115 125		A A A
Sperrverzögerungsladung Recovered charge	$I_F = 75\text{ A}, -di_F/dt = 4000\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r	3,00 6,00 7,50		μC μC μC
Abschaltenergie pro Puls Reverse recovery energy	$I_F = 75\text{ A}, -di_F/dt = 4000\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}	0,95 1,50 1,85		mJ mJ mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode		R_{thJC}		0,95	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{Paste} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}	0,33		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$

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**Vorläufige Daten
Preliminary Data**

MOSFET / MOSFET

Höchstzulässige Werte / Maximum Rated Values

Drain-Source-Sperrspannung Drain-source breakdown voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{DSS}		600		V
Drain-Gleichstrom DC drain current	$T_C = 80^{\circ}\text{C}$ $T_C = 25^{\circ}\text{C}$	$I_{D\text{ nom}}$ I_D		70 80		A A
Gepulster Drainstrom, tp limitiert durch Tjmax Pulsed drain current, tp limited by Tjmax		$I_{D\text{ puls}}$		210		A
Gesamt-Verlustleistung Total power dissipation	$T_C = 25^{\circ}\text{C}$	P_{tot}		1200		W
Gate-Source-Spitzenspannung Gate-source peak voltage		V_{GSS}		+/-20		V

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Einschaltwiderstand Drain-source on resistance	$I_D = 70\text{ A}, V_{GS} = 10\text{ V}, T_{vj} = 25^{\circ}\text{C}$	$R_{DS\text{ on}}$		22,0		mΩ
Gate-Schwellenspannung Gate threshold voltage	$I_D = 9,00\text{ mA}, V_{DS} = V_{GS}, T_{vj} = 25^{\circ}\text{C}$	$V_{GS(th)}$	3,00	4,00	5,00	V
Gateladung Gate charge	$V_{GS} = 10\text{ V}, V_{DD} = 480\text{ V}$	Q_G		0,25		μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$	R_{Gint}		1,3		Ω
Eingangskapazität Input capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}$	C_{iss}		23,0		nF
Ausgangskapazität Output capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}$	C_{oss}		6,60		nF
Rückwirkungskapazität Reverse transfer capacitance	$f = 1\text{ MHz}, T_{vj} = 25^{\circ}\text{C}, V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V}$	C_{rss}		0,23		nF
Drain-Source-Reststrom Zero gate voltage drain current	$V_{DS} = 600\text{ V}, V_{GS} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$	I_{DSS}			100	μA
Gate-Source-Reststrom Gate-source leakage current	$V_{DS} = 0\text{ V}, V_{GS} = 20\text{ V}, T_{vj} = 25^{\circ}\text{C}$	I_{GSS}			0,10	nA
Einschaltverzögerungszeit, induktive Last Turn on delay time, inductive load	$I_D = 70\text{ A}, V_{DS} = 400\text{ V}$ $V_{GS} = 10\text{ V}$ $R_G = 10,0\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$	$t_{d\text{ on}}$	0,18 0,17		ns
Anstiegszeit, induktive Last Rise time, inductive load	$I_D = 70\text{ A}, V_{DS} = 400\text{ V}$ $V_{GS} = 10\text{ V}$ $R_G = 10,0\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$	t_r	0,075 0,075		ns
Abschaltverzögerungszeit, induktive Last Turn off delay time, inductive load	$I_D = 70\text{ A}, V_{DS} = 400\text{ V}$ $V_{GS} = 10\text{ V}$ $R_G = 10,0\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$	$t_{d\text{ off}}$	0,50 0,53		ns
Fallzeit, induktive Last Fall time, inductive load	$I_D = 70\text{ A}, V_{DS} = 400\text{ V}$ $V_{GS} = 10\text{ V}$ $R_G = 10,0\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$	t_f	0,03 0,035		ns
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_D = 70\text{ A}, V_{DS} = 400\text{ V}, L_G = 30\text{ nH}$ $V_{GS} = 10\text{ V}$ $R_G = 10,0\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$	E_{on}	1,90		mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_D = 70\text{ A}, V_{DS} = 400\text{ V}, L_G = 30\text{ nH}$ $V_{GS} = 10\text{ V}$ $R_G = 10,0\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$	E_{off}	1,05		mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case		R_{thJC}			0,12	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro MOS-FET / per MOS-FET $\lambda_{\text{Paste}} = 1\text{ W}/(\text{m}^2\text{K}) / \lambda_{\text{grease}} = 1\text{ W}/(\text{m}^2\text{K})$	R_{thCH}		0,042		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions		$T_{vj\text{ op}}$	-40		125	°C

Revers-Diode / reverse-diode

			min.	typ.	max.	
Durchlassspannung Forward voltage	$I_S = 70\text{ A}, V_{GS} = 0\text{ V}$ $I_S = 70\text{ A}, V_{GS} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$	V_{SD}	0,80 0,70	1,10	V

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