Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)	R_{thCH}		0,200		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions		$T_{vj\,op}$	-40		150	°C

Diode, D2 / D3 / Diode, D2 / D3

Höchstzulässige Werte / Maximum Rated Values

Periodische Spitzensperrspannung Repetitive peak reverse voltage	T_{vj} = 25°C	V_{RRM}		650		V
Implementierter Durchlassstrom Implemented forward current		I_{FN}		125		A
Dauergleichstrom Continuous DC forward current		I_F		100		A
Periodischer Spitzenstrom Repetitive peak forward current	t_P = 1 ms	I_{FRM}		250		A
Grenzlastintegral I²t - value	V_R = 0 V, t_P = 10 ms, T_{vj} = 125°C V_R = 0 V, t_P = 10 ms, T_{vj} = 150°C	I²t		1450 1400		A²s A²s

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	I_F = 100 A, V_{GE} = 0 V T_{vj} = 25°C I_F = 100 A, V_{GE} = 0 V T_{vj} = 125°C I_F = 100 A, V_{GE} = 0 V T_{vj} = 150°C	V_F		1,55 1,50 1,45	1,70	V V V
Rückstromspitze Peak reverse recovery current	I_F = 100 A, - di_F/dt = 3700 A/µs (T_{vj}=150°C) T_{vj} = 25°C V_R = 400 V T_{vj} = 125°C V_{GE} = -15 V T_{vj} = 150°C	I_{RM}		90,0 100 100		A A A
Sperrverzögerungsladung Recovered charge	I_F = 100 A, - di_F/dt = 3700 A/µs (T_{vj}=150°C) T_{vj} = 25°C V_R = 400 V T_{vj} = 125°C V_{GE} = -15 V T_{vj} = 150°C	Q_r		3,25 5,90 6,40		µC µC µC
Abschaltenergie pro Puls Reverse recovery energy	I_F = 100 A, - di_F/dt = 3700 A/µs (T_{vj}=150°C) T_{vj} = 25°C V_R = 400 V T_{vj} = 125°C V_{GE} = -15 V T_{vj} = 150°C	E_{rec}		0,95 1,55 1,65		mJ mJ mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode	R_{thJC}		0,550	0,650	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)	R_{thCH}		0,600		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions		$T_{vj\,op}$	-40		150	°C

IGBT, T2 / T3 / IGBT, T2 / T3

Höchstzulässige Werte / Maximum Rated Values

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	T_{vj} = 25°C	V_{CES}	650	V
Kollektor-Dauergleichstrom Continuous DC collector current	T_C = 100°C, $T_{vj\,max}$ = 175°C	$I_{C\,nom}$	100	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	t_P = 1 ms	I_{CRM}	200	A
Gesamt-Verlustleistung Total power dissipation	T_C = 25°C, $T_{vj\,max}$ = 175°C	P_{tot}	250	W
Gate-Emitter-Spitzenspannung Gate-emitter peak voltage		V_{GES}	+/-20	V

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage	I_C = 100 A, V_{GE} = 15 V I_C = 100 A, V_{GE} = 15 V I_C = 100 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE\,sat}$		1,45 1,60 1,70	1,90	V V V
Gate-Schwellenspannung Gate threshold voltage	I_C = 1,60 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	4,95	5,80	6,45	V
Gateladung Gate charge	V_{GE} = -15 V ... +15 V		Q_G		1,00		µC
Interner Gatewiderstand Internal gate resistor	T_{vj} = 25°C		R_{Gint}		2,0		Ω
Eingangskapazität Input capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		6,20		nF
Rückwirkungskapazität Reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		0,19		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	V_{CE} = 650 V, V_{GE} = 0 V, T_{vj} = 25°C		I_{CES}			1,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	V_{CE} = 0 V, V_{GE} = 20 V, T_{vj} = 25°C		I_{GES}			100	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	I_C = 100 A, V_{CE} = 400 V V_{GE} = ±15 V R_{Gon} = 3,3 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,on}$		0,055 0,06 0,065		µs µs µs
Anstiegszeit, induktive Last Rise time, inductive load	I_C = 100 A, V_{CE} = 400 V V_{GE} = ±15 V R_{Gon} = 3,3 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r		0,025 0,03 0,03		µs µs µs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	I_C = 100 A, V_{CE} = 400 V V_{GE} = ±15 V R_{Goff} = 3,3 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\,off}$		0,25 0,27 0,28		µs µs µs
Fallzeit, induktive Last Fall time, inductive load	I_C = 100 A, V_{CE} = 400 V V_{GE} = ±15 V R_{Goff} = 3,3 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f		0,035 0,05 0,06		µs µs µs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	I_C = 100 A, V_{CE} = 400 V, L_S = 25 nH V_{GE} = ±15 V, di/dt = 3800 A/µs (T_{vj} = 150°C) R_{Gon} = 3,3 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}		1,85 2,80 3,30		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	I_C = 100 A, V_{CE} = 400 V, L_S = 25 nH V_{GE} = ±15 V, du/dt = 4600 V/µs (T_{vj} = 150°C) R_{Goff} = 3,3 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}		3,10 4,10 4,60		mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq$ 15 V, V_{CC} = 360 V V_{CEmax} = V_{CES} -L_{sCE} ·di/dt	$t_P \leq$ 8 µs, T_{vj} = 25°C $t_P \leq$ 6 µs, T_{vj} = 150°C	I_{SC}		700 500		A A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,500	0,600	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)		R_{thCH}		0,500		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\,op}$	-40		150	°C

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