Diode-Wechselrichter / diode-inverter

Höchstzulässige Werte / maximum rated values

Periodische Spitzensperrspannung repetitive peak reverse voltage	T_{vj} = 25°C	V_{RRM}		1200	V
Dauergleichstrom DC forward current		I_F		35	A
Periodischer Spitzenstrom repetitive peak forward current	t_P = 1 ms	I_{FRM}		70	A
Grenzlastintegral I²t - value	V_R = 0 V, t_P = 10 ms, T_{vj} = 125°C	I²t		240	A²s

Charakteristische Werte / characteristic values

			min.	typ.	max.	
Durchlassspannung forward voltage	I_F = 35 A, V_{GE} = 0 V, T_{vj} = 25°C I_F = 35 A, V_{GE} = 0 V, T_{vj} = 125°C I_F = 35 A, V_{GE} = 0 V, T_{vj} = 150°C	V_F		1,70 1,65 1,65	2,15	V V V
Rückstromspitze peak reverse recovery current	I_F = 35 A, - di_F/dt = 1100 A/µs (T_{vj}=150°C), T_{vj} = 25°C V_R = 600 V, T_{vj} = 125°C V_{GE} = -15 V, T_{vj} = 150°C	I_{RM}		35,0 39,0 40,0		A A A
Sperrverzögerungsladung recovered charge	I_F = 35 A, - di_F/dt = 1100 A/µs (T_{vj}=150°C), T_{vj} = 25°C V_R = 600 V, T_{vj} = 125°C V_{GE} = -15 V, T_{vj} = 150°C	Q_r		3,40 6,30 7,20		µC µC µC
Abschaltenergie pro Puls reverse recovery energy	I_F = 35 A, - di_F/dt = 1100 A/µs (T_{vj}=150°C), T_{vj} = 25°C V_R = 600 V, T_{vj} = 125°C V_{GE} = -15 V, T_{vj} = 150°C	E_{rec}		1,10 2,25 2,55		mJ mJ mJ
Innerer Wärmewiderstand thermal resistance, junction to case	pro Diode / per diode	R_{thJC}			1,00	K/W
Übergangs-Wärmewiderstand thermal resistance, case to heatsink	pro Diode / per diode λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)	R_{thCH}		0,46		K/W

Diode-Gleichrichter / diode-rectifier

Höchstzulässige Werte / maximum rated values

Periodische Rückw. Spitzensperrspannung repetitive peak reverse voltage	T_{vj} = 25°C	V_{RRM}		1600	V
Durchlassstrom Grenzeffektivwert pro Dio. forward current RMS maximum per diode	T_C = 80°C	I_{FRMSM}		70	A
Gleichrichter Ausgang Grenzeffektivstrom maximum RMS current at Rectifier output	T_C = 80°C	I_{RMSM}		80	A
Stoßstrom Grenzwert surge forward current	t_p = 10 ms, T_{vj} = 25°C t_p = 10 ms, T_{vj} = 150°C	I_{FSM}		450 370	A A
Grenzlastintegral I²t - value	t_p = 10 ms, T_{vj} = 25°C t_p = 10 ms, T_{vj} = 150°C	I²t		1000 685	A²s A²s

Charakteristische Werte / characteristic values

			min.	typ.	max.	
Durchlassspannung forward voltage	T_{vj} = 150°C, I_F = 35 A	V_F		0,95		V
Sperrstrom reverse current	T_{vj} = 150°C, V_R = 1600 V	I_R		1,00		mA
Innerer Wärmewiderstand thermal resistance, junction to case	pro Diode per diode	R_{thJC}			0,85	K/W
Übergangs-Wärmewiderstand thermal resistance, case to heatsink	pro Diode / per diode λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)	R_{thCH}		0,395		K/W

IGBT-Brems-Chopper / IGBT-brake-chopper

Höchstzulässige Werte / maximum rated values

Kollektor-Emitter-Sperrspannung collector-emitter voltage	T_{vj} = 25°C	V_{CES}	1200	V
Kollektor-Dauergleichstrom DC-collector current	T_C = 100°C, T_{vj} = 175°C	I_{Cnom}	25	A
Periodischer Kollektor Spitzenstrom repetitive peak collector current	t_P = 1 ms	I_{CRM}	50	A
Gesamt-Verlustleistung total power dissipation	T_C = 25°C, T_{vj} = 175°C	P_{tot}	160	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 = 25 A, V_{GE} = 15 V I_C = 25 A, V_{GE} = 15 V I_C = 25 A, V_{GE} = 15 V	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$V_{CE\ sat}$	1,85 2,15 2,25	2,15	V V V
Gate-Schwellenspannung gate threshold voltage	I_C = 0,80 mA, V_{CE} = V_{GE}, T_{vj} = 25°C		V_{GEth}	5,2	5,8	6,4	V
Gateladung gate charge	V_{GE} = -15 V ... +15 V		Q_G		0,20		µC
Interner Gatewiderstand internal gate resistor	T_{vj} = 25°C		R_{Gint}		0,00		Ω
Eingangskapazität input capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{ies}		1,45		nF
Rückwirkungskapazität reverse transfer capacitance	f = 1 MHz, T_{vj} = 25°C, V_{CE} = 25 V, V_{GE} = 0 V		C_{res}		0,05		nF
Kollektor-Emitter Reststrom collector-emitter cut-off current	V_{CE} = 1200 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 (ind. Last) turn-on delay time (inductive load)	I_C = 25 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 37 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ on}$		0,05 0,06 0,06		µs µs µs
Anstiegszeit (induktive Last) rise time (inductive load)	I_C = 25 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Gon} = 37 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_r		0,03 0,04 0,05		µs µs µs
Abschaltverzögerungszeit (ind. Last) turn-off delay time (inductive load)	I_C = 25 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 37 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	$t_{d\ off}$		0,34 0,43 0,45		µs µs µs
Fallzeit (induktive Last) fall time (inductive load)	I_C = 25 A, V_{CE} = 600 V V_{GE} = ±15 V R_{Goff} = 37 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	t_f		0,05 0,07 0,08		µs µs µs
Einschaltverlustenergie pro Puls turn-on energy loss per pulse	I_C = 25 A, V_{CE} = 600 V, L_S = 20 nH V_{GE} = ±15 V R_{Gon} = 37 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{on}		2,00 2,65 2,90		mJ mJ mJ
Abschaltverlustenergie pro Puls turn-off energy loss per pulse	I_C = 25 A, V_{CE} = 600 V, L_S = 20 nH V_{GE} = ±15 V R_{Goff} = 37 Ω	T_{vj} = 25°C T_{vj} = 125°C T_{vj} = 150°C	E_{off}		1,40 2,20 2,40		mJ mJ mJ
Kurzschlussverhalten SC data	V_{GE} ≤ 15 V, V_{CC} = 800 V V_{CEmax} = V_{CES} -L_{sCE} · di/dt	t_P ≤ 10 µs, T_{vj} = 150°C	I_{SC}		90		A
Innerer Wärmewiderstand thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}			0,95	K/W
Übergangs-Wärmewiderstand thermal resistance, case to heatsink	pro IGBT / per IGBT λ_{Paste} = 1 W/(m·K) / λ_{grease} = 1 W/(m·K)		R_{thCH}		0,44		K/W