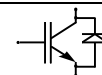


Technische Information / Technical Information

IGBT-Module
IGBT-Modules

BSM100GP60

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Elektrische Eigenschaften / Electrical properties

Höchstzulässige Werte / Maximum rated values

Diode Gleichrichter/ Diode Rectifier

Periodische Rückw. Spitzenspernung repetitive peak reverse voltage		V_{RRM}	1600	V
Durchlaßstrom Grenzeffektivwert RMS forward current per chip		I_{FRMSM}	80	A
Dauergleichstrom DC forward current	$T_C = 80^\circ\text{C}$	I_d	100	A
Stoßstrom Grenzwert surge forward current	$t_p = 10\text{ ms}, T_{vj} = 25^\circ\text{C}$ $t_p = 10\text{ ms}, T_{vj} = 150^\circ\text{C}$	I_{FSM}	700 570	A A
Grenzlastintegral I^2t - value	$t_p = 10\text{ ms}, T_{vj} = 25^\circ\text{C}$ $t_p = 10\text{ ms}, T_{vj} = 150^\circ\text{C}$	I^2t	2450 1620	A^2s A^2s

Transistor Wechselrichter/ Transistor Inverter

Kollektor-Emitter-Spernung collector-emitter voltage		V_{CES}	600	V
Kollektor-Dauergleichstrom DC-collector current	$T_C = 70^\circ\text{C}$ $T_C = 25^\circ\text{C}$	$I_{C,nom.}$ I_C	100 135	A A
Periodischer Kollektor Spitzenstrom repetitive peak collector current	$t_p = 1\text{ ms}, T_C = 70^\circ\text{C}$	I_{CRM}	200	A
Gesamt-Verlustleistung total power dissipation	$T_C = 25^\circ\text{C}$	P_{tot}	420	W
Gate-Emitter-Spernung gate-emitter peak voltage		V_{GES}	+/- 20V	V

Diode Wechselrichter/ Diode Inverter

Dauergleichstrom DC forward current	$T_C = 70^\circ\text{C}$	I_F	100	A
Periodischer Spitzenstrom repetitive peak forw. current	$t_p = 1\text{ ms}$	I_{FRM}	200	A
Grenzlastintegral I^2t - value	$V_R = 0\text{V}, t_p = 10\text{ms}, T_{vj} = 125^\circ\text{C}$	I^2t	2.300	A^2s

Transistor Brems-Chopper/ Transistor Brake-Chopper

Kollektor-Emitter-Spernung collector-emitter voltage		V_{CES}	600	V
Kollektor-Dauergleichstrom DC-collector current	$T_C = 80^\circ\text{C}$ $T_C = 25^\circ\text{C}$	$I_{C,nom.}$ I_C	50 75	A A
Periodischer Kollektor Spitzenstrom repetitive peak collector current	$t_p = 1\text{ ms}, T_C = 80^\circ\text{C}$	I_{CRM}	100	A
Gesamt-Verlustleistung total power dissipation	$T_C = 25^\circ\text{C}$	P_{tot}	250	W
Gate-Emitter-Spernung gate-emitter peak voltage		V_{GES}	+/- 20V	V

Diode Brems-Chopper/ Diode Brake-Chopper

Dauergleichstrom DC forward current	$T_C = 70^\circ\text{C}$	I_F	30	A
Periodischer Spitzenstrom repetitive peak forw. current	$t_p = 1\text{ ms}$	I_{FRM}	60	A

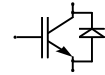
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Technische Information / Technical Information

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Modul Isolation/ Module Isolation

Isolations-Prüfspannung insulation test voltage	RMS, f = 50 Hz, t = 1 min. NTC connected to Baseplate	V_{ISOL}	2,5	kV
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Elektrische Eigenschaften / Electrical properties

Charakteristische Werte / Characteristic values

Diode Gleichrichter/ Diode Rectifier

			min.	typ.	max.	
Durchlaßspannung forward voltage	$T_{vj} = 150^{\circ}\text{C}$, $I_F = 100\text{ A}$	V_F	-	1,16	-	V
Schleusenspannung threshold voltage	$T_{vj} = 150^{\circ}\text{C}$	$V_{(TO)}$	-	-	0,8	V
Ersatzwiderstand slope resistance	$T_{vj} = 150^{\circ}\text{C}$	r_T	-	-	4,8	m Ω
Sperrstrom reverse current	$T_{vj} = 150^{\circ}\text{C}$, $V_R = 1600\text{ V}$	I_R	-	4	-	mA
Modul Leitungswiderstand, Anschlüsse-Chip lead resistance, terminals-chip	$T_C = 25^{\circ}\text{C}$	R_{AA+CC}	-	4	-	m Ω

Transistor Wechselrichter/ Transistor Inverter

			min.	typ.	max.	
Kollektor-Emitter Sättigungsspannung collector-emitter saturation voltage	$V_{GE} = 15\text{V}$, $T_{vj} = 25^{\circ}\text{C}$, $I_C = 100\text{ A}$	$V_{CE\text{ sat}}$	-	1,95	2,45	V
	$V_{GE} = 15\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $I_C = 100\text{ A}$		-	2,2	-	V
Gate-Schwellenspannung gate threshold voltage	$V_{CE} = V_{GE}$, $T_{vj} = 25^{\circ}\text{C}$, $I_C = 1,5\text{ mA}$	$V_{GE(TO)}$	4,5	5,5	6,5	V
Eingangskapazität input capacitance	$f = 1\text{MHz}$, $T_{vj} = 25^{\circ}\text{C}$ $V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$	C_{ies}	-	4,3	-	nF
Kollektor-Emitter Reststrom collector-emitter cut-off current	$V_{GE} = 0\text{V}$, $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 600\text{ V}$	I_{CES}	-	3,0	500	μA
	$V_{GE} = 0\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $V_{CE} = 600\text{ V}$		-	4,0	-	mA
Gate-Emitter Reststrom gate-emitter leakage current	$V_{CE} = 0\text{V}$, $V_{GE} = 20\text{V}$, $T_{vj} = 25^{\circ}\text{C}$	I_{GES}	-	-	300	nA
Einschaltverzögerungszeit (ind. Last) turn on delay time (inductive load)	$I_C = I_{Nenn}$, $V_{CC} = 300\text{ V}$	$t_{d,on}$	-	50	-	ns
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 25^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
Anstiegszeit (induktive Last) rise time (inductive load)	$I_C = I_{Nenn}$, $V_{CC} = 300\text{ V}$	t_r	-	65	-	ns
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 25^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
Abschaltverzögerungszeit (ind. Last) turn off delay time (inductive load)	$I_C = I_{Nenn}$, $V_{CC} = 300\text{ V}$	$t_{d,off}$	-	260	-	ns
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 25^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
Fallzeit (induktive Last) fall time (inductive load)	$I_C = I_{Nenn}$, $V_{CC} = 300\text{ V}$	t_f	-	35	-	ns
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 25^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
	$V_{GE} = \pm 15\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$					
Einschaltverlustenergie pro Puls turn-on energy loss per pulse	$I_C = I_{Nenn}$, $V_{CC} = 300\text{ V}$ $V_{GE} = \pm 15\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$ $L_S = 50\text{ nH}$	E_{on}	-	4,2	-	mWs
Abschaltverlustenergie pro Puls turn-off energy loss per pulse	$I_C = I_{Nenn}$, $V_{CC} = 300\text{ V}$ $V_{GE} = \pm 15\text{V}$, $T_{vj} = 125^{\circ}\text{C}$, $R_G = 15\text{ Ohm}$ $L_S = 50\text{ nH}$	E_{off}	-	3,2	-	mWs
Kurzschlußverhalten SC Data	$t_P \leq 10\mu\text{s}$, $V_{GE} \leq 15\text{V}$, $R_G = 15\text{ Ohm}$ $T_{vj} \leq 125^{\circ}\text{C}$, $V_{CC} = 360\text{ V}$ $di/dt = 4000\text{ A}/\mu\text{s}$	I_{SC}	-	400	-	A