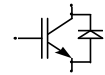


Technische Information / Technical Information

IGBT-Module
IGBT-Modules

BSM 100 GB 170 DLC

eupec



Höchstzulässige Werte / Maximum rated values

Elektrische Eigenschaften / Electrical properties

Kollektor-Emitter-Sperrspannung collector-emitter voltage		V_{CES}	1700	V
Kollektor-Dauergleichstrom DC-collector current	$T_C = 80\text{ °C}$	$I_{C,nom.}$	100	A
	$T_C = 25\text{ °C}$	I_C	200	A
Periodischer Kollektor Spitzenstrom repetitive peak collector current	$t_p = 1\text{ ms}, T_C = 80\text{ °C}$	I_{CRM}	200	A
Gesamt-Verlustleistung total power dissipation	$T_C = 25\text{ °C}$, Transistor	P_{tot}	960	W
Gate-Emitter-Spitzenspannung gate-emitter peak voltage		V_{GES}	+/- 20V	V
Dauergleichstrom DC forward current		I_F	100	A
Periodischer Spitzenstrom repetitive peak forw. current	$t_p = 1\text{ ms}$	I_{FRM}	200	A
Grenzlastintegral der Diode I^2t - value, Diode	$V_R = 0V, t_p = 10\text{ms}, T_{vj} = 125\text{ °C}$	I^2t	2.800	A ² s
Isolations-Prüfspannung insulation test voltage	RMS, $f = 50\text{ Hz}, t = 1\text{ min.}$	V_{ISOL}	3,4	kV

Charakteristische Werte / Characteristic values

Transistor / Transistor

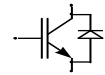
			min.	typ.	max.	
Kollektor-Emitter Sättigungsspannung collector-emitter saturation voltage	$I_C = 100A, V_{GE} = 15V, T_{vj} = 25\text{ °C}$	$V_{CE\text{ sat}}$	-	2,6	3,2	V
	$I_C = 100A, V_{GE} = 15V, T_{vj} = 125\text{ °C}$		-	3,1	3,6	V
Gate-Schwellenspannung gate threshold voltage	$I_C = 5mA, V_{CE} = V_{GE}, T_{vj} = 25\text{ °C}$	$V_{GE(th)}$	4,5	5,5	6,5	V
Gateladung gate charge	$V_{GE} = -15V \dots +15V$	Q_G	-	1,2	-	μC
Eingangskapazität input capacitance	$f = 1\text{MHz}, T_{vj} = 25\text{ °C}, V_{CE} = 25V, V_{GE} = 0V$	C_{ies}	-	7	-	nF
Rückwirkungskapazität reverse transfer capacitance	$f = 1\text{MHz}, T_{vj} = 25\text{ °C}, V_{CE} = 25V, V_{GE} = 0V$	C_{res}	-	0,3	-	nF
Kollektor-Emitter Reststrom collector-emitter cut-off current	$V_{CE} = 1700V, V_{GE} = 0V, T_{vj} = 25\text{ °C}$	I_{CES}	-	0,05	0,2	mA
	$V_{CE} = 1700V, V_{GE} = 0V, T_{vj} = 125\text{ °C}$		-	3		mA
Gate-Emitter Reststrom gate-emitter leakage current	$V_{CE} = 0V, V_{GE} = 20V, T_{vj} = 25\text{ °C}$	I_{GES}	-	-	200	nA

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revision: 2 (Series)



Charakteristische Werte / Characteristic values

Transistor / Transistor

			min.	typ.	max.	
Einschaltverzögerungszeit (ind. Last) turn on delay time (inductive load)	$I_C = 100A, V_{CE} = 900V$	$t_{d,on}$	-	0,1	-	μs
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 25^\circ C$					
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 125^\circ C$					
Anstiegszeit (induktive Last) rise time (inductive load)	$I_C = 100A, V_{CE} = 900V$	t_r	-	0,1	-	μs
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 25^\circ C$					
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 125^\circ C$					
Abschaltverzögerungszeit (ind. Last) turn off delay time (inductive load)	$I_C = 100A, V_{CE} = 900V$	$t_{d,off}$	-	0,8	-	μs
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 25^\circ C$					
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 125^\circ C$					
Fallzeit (induktive Last) fall time (inductive load)	$I_C = 100A, V_{CE} = 900V$	t_f	-	0,03	-	μs
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 25^\circ C$					
	$V_{GE} = \pm 15V, R_G = 15\Omega, T_{vj} = 125^\circ C$					
Einschaltverlustenergie pro Puls turn-on energy loss per pulse	$I_C = 100A, V_{CE} = 900V, V_{GE} = 15V$ $R_G = 15\Omega, T_{vj} = 125^\circ C, L_S = 60nH$	E_{on}	-	50	-	mWs
Abschaltverlustenergie pro Puls turn-off energy loss per pulse	$I_C = 100A, V_{CE} = 900V, V_{GE} = 15V$ $R_G = 15\Omega, T_{vj} = 125^\circ C, L_S = 60nH$	E_{off}	-	30	-	mWs
Kurzschlußverhalten SC Data	$t_F \leq 10\mu sec, V_{GE} \leq 15V, R_G = 15\Omega$	I_{SC}	-	400	-	A
	$T_{vj} \leq 125^\circ C, V_{CC} = 1000V, V_{CEmax} = V_{CES} - L_{SCE} \cdot di/dt$					
Modulinduktivität stray inductance module		L_{SCE}	-	30	-	nH
Modulleitungswiderstand, Anschlüsse - Chip module lead resistance, terminals - chip	pro Zweig / per arm	R_{CC+EE}	-	0,6	-	m Ω

Charakteristische Werte / Characteristic values

Diode / Diode

			min.	typ.	max.	
Durchlaßspannung forward voltage	$I_F = 100A, V_{GE} = 0V, T_{vj} = 25^\circ C$	V_F	-	2,1	2,5	V
	$I_F = 100A, V_{GE} = 0V, T_{vj} = 125^\circ C$					
Rückstromspitze peak reverse recovery current	$I_F = 100A, -di_F/dt = 1100A/\mu sec$	I_{RM}	-	70	-	A
	$V_R = 900V, V_{GE} = -10V, T_{vj} = 25^\circ C$					
	$V_R = 900V, V_{GE} = -10V, T_{vj} = 125^\circ C$					
Sperrverzögerungsladung recovered charge	$I_F = 100A, -di_F/dt = 1100A/\mu sec$	Q_r	-	23	-	μAs
	$V_R = 900V, V_{GE} = -10V, T_{vj} = 25^\circ C$					
	$V_R = 900V, V_{GE} = -10V, T_{vj} = 125^\circ C$					
Abschaltenergie pro Puls reverse recovery energy	$I_F = 100A, -di_F/dt = 1100A/\mu sec$	E_{rec}	-	11	-	mWs
	$V_R = 900V, V_{GE} = -10V, T_{vj} = 25^\circ C$					
	$V_R = 900V, V_{GE} = -10V, T_{vj} = 125^\circ C$					