**eupec**

IGBT Power Module

VM175569

• Power module

• 3-phase full-bridge

• Including fast free-wheel diodes

• Package with insulated metal base plate
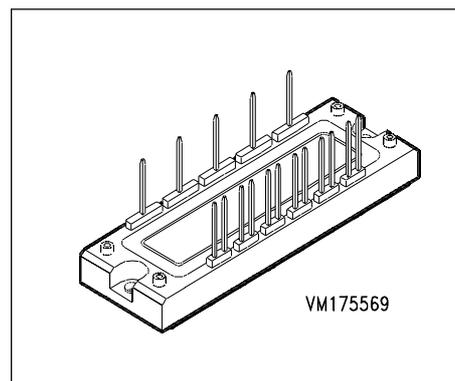
Type	V_{CE}	I_C	Package	Ordering Code
BSM 15 GD 120 DN2	1200V	25A	ECONOPACK 2	C67076-A2504-A67
BSM 15 GD120DN2E3224	1200V	25A	ECONOPACK 2K	C67070-A2504-A67

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE}	1200	V
Collector-gate voltage	V_{CGR}		
R_{GE} = 20 kΩ		1200	
Gate-emitter voltage	V_{GE}	± 20	
DC collector current	I_C		A
T_C = 25 °C		25	
T_C = 80 °C		15	
Pulsed collector current, t_p = 1 ms	I_{Cpuls}		
T_C = 25 °C		50	
T_C = 80 °C		30	
Power dissipation per IGBT	P_{tot}		W
T_C = 25 °C		145	
Chip temperature	T_j	+ 150	°C
Storage temperature	T_{stg}	-40 ... + 125	
Thermal resistance, chip case	R_{thJC}	≤ 0.86	K/W
Diode thermal resistance, chip case	$R_{thJC\mathbf{D}}$	≤ 1.5	
Insulation test voltage, t = 1min.	V_{is}	2500	Vac
Creepage distance	-	16	mm
Clearance	-	11	
DIN humidity category, DIN 40 040	-	F	sec
IEC climatic category, DIN IEC 68-1	-	40 / 125 / 56	

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Electrical Characteristics, at $T_j = 25$ °C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Static Characteristics					
Gate threshold voltage	$V_{GE(th)}$				V
$V_{GE} = V_{CE}$, $I_C = 0.6$ mA		4.5	5.5	6.5	
Collector-emitter saturation voltage	$V_{CE(sat)}$				
$V_{GE} = 15$ V, $I_C = 15$ A, $T_j = 25$ °C		-	2.5	3	
$V_{GE} = 15$ V, $I_C = 15$ A, $T_j = 125$ °C		-	3.1	3.7	
Zero gate voltage collector current	I_{CES}				mA
$V_{CE} = 1200$ V, $V_{GE} = 0$ V, $T_j = 25$ °C		-	0.3	0.5	
$V_{CE} = 1200$ V, $V_{GE} = 0$ V, $T_j = 125$ °C		-	1.2	-	
Gate-emitter leakage current	I_{GES}				nA
$V_{GE} = 20$ V, $V_{CE} = 0$ V		-	-	150	
AC Characteristics					
Transconductance	g_{fs}				S
$V_{CE} = 20$ V, $I_C = 15$ A		5.5	-	-	
Input capacitance	C_{iss}				pF
$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz		-	1000	-	
Output capacitance	C_{oss}				
$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz		-	150	-	
Reverse transfer capacitance	C_{rss}				
$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz		-	70	-	

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Electrical Characteristics, at T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

Switching Characteristics, Inductive Load at T_j = 125 °C

Parameter	Symbol	min.	typ.	max.	Unit
Turn-on delay time V_{CC} = 600 V, V_{GE} = 15 V, I_C = 15 A R_{Gon} = 82 Ω	$t_{d(on)}$	-	55	110	ns
Rise time V_{CC} = 600 V, V_{GE} = 15 V, I_C = 15 A R_{Gon} = 82 Ω	t_r	-	45	90	
Turn-off delay time V_{CC} = 600 V, V_{GE} = -15 V, I_C = 15 A R_{Goff} = 82 Ω	$t_{d(off)}$	-	400	600	
Fall time V_{CC} = 600 V, V_{GE} = -15 V, I_C = 15 A R_{Goff} = 82 Ω	t_f	-	70	100	

Free-Wheel Diode

Parameter	Symbol	min.	typ.	max.	Unit
Diode forward voltage I_F = 15 A, V_{GE} = 0 V, T_j = 25 °C I_F = 15 A, V_{GE} = 0 V, T_j = 125 °C	V_F	- -	2.4 1.9	2.9 -	V
Reverse recovery time I_F = 15 A, V_R = -600 V, V_{GE} = 0 V di_F/dt = -800 A/µs, T_j = 125 °C	t_{rr}	-	0.1	-	µs
Reverse recovery charge I_F = 15 A, V_R = -600 V, V_{GE} = 0 V di_F/dt = -800 A/µs T_j = 25 °C T_j = 125 °C	Q_{rr}	- -	1 3	- -	µC

Circuit Diagram

SIS00040
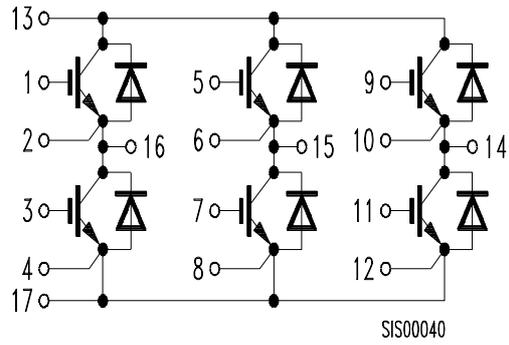
Package Outlines

Dimensions in mm

Weight: 180 g

GM175569