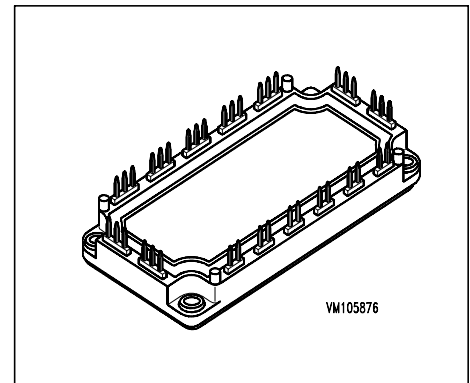


IGBT Power Module

Target data sheet

- Three single switches
- Including fast free-wheeling diodes
- Package with insulated metal base plate
- Solderable Terminals



Type	V_{CE}	I_C	Package	Ordering Code
BSM 100 GT 120 DN2	1200V	150A	TRIPACK	C67070-A2520-A67

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE}	1200	V
Collector-gate voltage	V_{CGR}	1200	
$R_{GE} = 20 \text{ k}\Omega$			
Gate-emitter voltage	V_{GE}	± 20	
DC collector current	I_C		A
$T_C = 25 \text{ }^\circ\text{C}$		150	
$T_C = 80 \text{ }^\circ\text{C}$		100	
Pulsed collector current, $t_p = 1 \text{ ms}$	I_{Cpuls}		
$T_C = 25 \text{ }^\circ\text{C}$		300	
$T_C = 80 \text{ }^\circ\text{C}$		200	
Power dissipation per IGBT	P_{tot}		W
$T_C = 25 \text{ }^\circ\text{C}$		680	
Chip temperature	T_j	+ 150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 ... + 150	
Thermal resistance, chip case	R_{thJC}	≤ 0.182	K/W
Diode thermal resistance, chip case	R_{thJCD}	≤ 0.36	
Insulation test voltage, $t = 1 \text{ min.}$	V_{is}	2500	Vac
Creepage distance	-	16	mm
Clearance	-	11	
DIN humidity category, DIN 40 040	-	F	-
IEC climatic category, DIN IEC 68-1	-	55 / 150 / 56	

Electrical Characteristics, at $T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

Static Characteristics

Gate threshold voltage $V_{GE} = V_{CE}, I_C = 4\text{ mA}$	$V_{GE(th)}$				V
Collector-emitter saturation voltage $V_{GE} = 15\text{ V}, I_C = 100\text{ A}, T_j = 25\text{ °C}$ $V_{GE} = 15\text{ V}, I_C = 100\text{ A}, T_j = 125\text{ °C}$	$V_{CE(sat)}$	- -	2.5 3.1	3 3.7	
Zero gate voltage collector current $V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_j = 25\text{ °C}$ $V_{CE} = 1200\text{ V}, V_{GE} = 0\text{ V}, T_j = 125\text{ °C}$	I_{CES}	- -	1.5 6	2 -	mA
Gate-emitter leakage current $V_{GE} = 20\text{ V}, V_{CE} = 0\text{ V}$	I_{GES}	-	-	400	nA

AC Characteristics

Transconductance $V_{CE} = 20\text{ V}, I_C = 100\text{ A}$	g_{fs}	54	-	-	S
Input capacitance $V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$	C_{iss}	-	6.5	-	nF
Output capacitance $V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$	C_{oss}	-	1	-	
Reverse transfer capacitance $V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$	C_{rss}	-	0.5	-	

Electrical Characteristics, at $T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

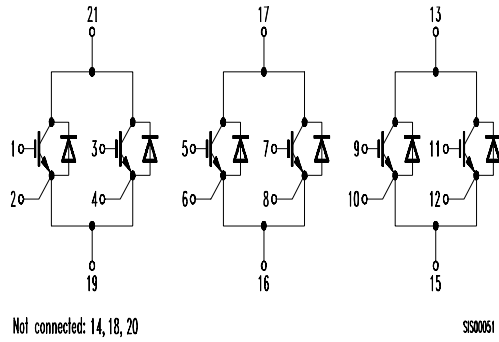
Switching Characteristics, Inductive Load at $T_j = 125\text{ °C}$

Turn-on delay time $V_{CC} = 600\text{ V}$, $V_{GE} = 15\text{ V}$, $I_C = 100\text{ A}$ $R_{Gon} = 6.8\ \Omega$	$t_{d(on)}$	-	160	320	ns
Rise time $V_{CC} = 600\text{ V}$, $V_{GE} = 15\text{ V}$, $I_C = 100\text{ A}$ $R_{Gon} = 6.8\ \Omega$	t_r	-	80	160	
Turn-off delay time $V_{CC} = 600\text{ V}$, $V_{GE} = -15\text{ V}$, $I_C = 100\text{ A}$ $R_{Goff} = 6.8\ \Omega$	$t_{d(off)}$	-	400	520	
Fall time $V_{CC} = 600\text{ V}$, $V_{GE} = -15\text{ V}$, $I_C = 100\text{ A}$ $R_{Goff} = 6.8\ \Omega$	t_f	-	70	100	

Free-Wheel Diode

Diode forward voltage $I_F = 100\text{ A}$, $V_{GE} = 0\text{ V}$, $T_j = 25\text{ °C}$ $I_F = 100\text{ A}$, $V_{GE} = 0\text{ V}$, $T_j = 125\text{ °C}$	V_F	-	2.3 1.8	2.8 -	V
Reverse recovery time $I_F = 100\text{ A}$, $V_R = -600\text{ V}$, $V_{GE} = 0\text{ V}$ $di_F/dt = -800\text{ A}/\mu\text{s}$, $T_j = 125\text{ °C}$	t_{rr}	-	0.3	-	
Reverse recovery charge $I_F = 100\text{ A}$, $V_R = -600\text{ V}$, $V_{GE} = 0\text{ V}$ $di_F/dt = -800\text{ A}/\mu\text{s}$ $T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$	Q_{rr}	-	4 11	- -	μC

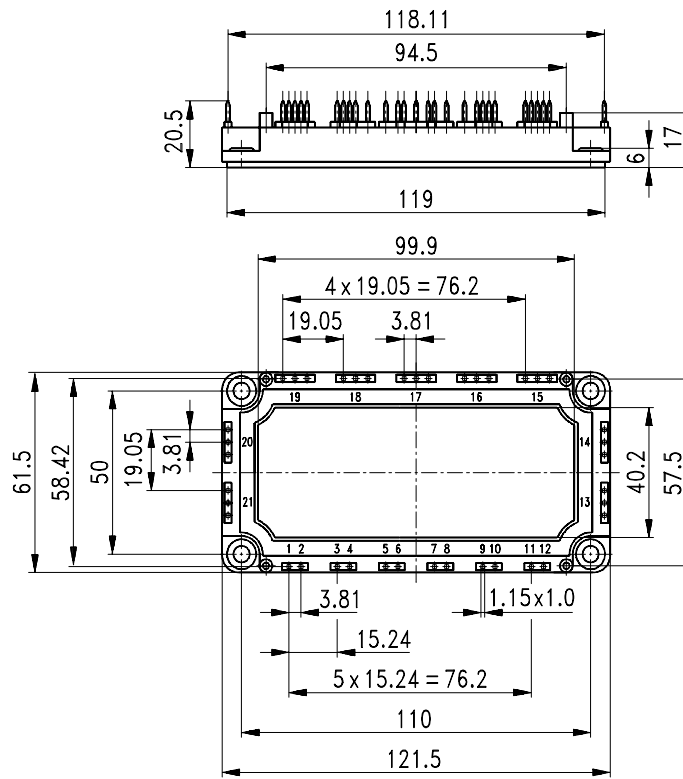
Circuit Diagram



Package Outlines

Dimensions in mm

Weight: 300 g



GM105876