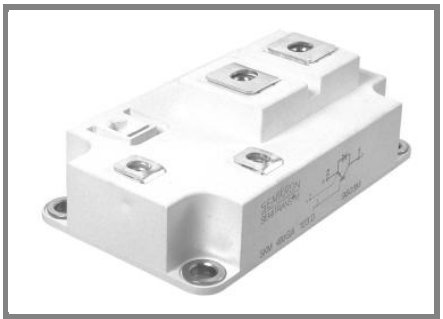
SKM 800GA125D



SEMITRANS^{TM} 3

Ultrafast IGBT Modules

SKM 800GA125D

Target Data

Features

- Homogeneous Si
- NPT-IGBT
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to 6 x I_C

Typical Applications

- Resonant inverters up to 100 kHz
- Inductive heating
- Electronic welders at fsw > 20 kHz

Remarks

- $I_{DC} \leq 500$ A limited by terminals
- Take care of over-voltage caused by stray inductances

GA

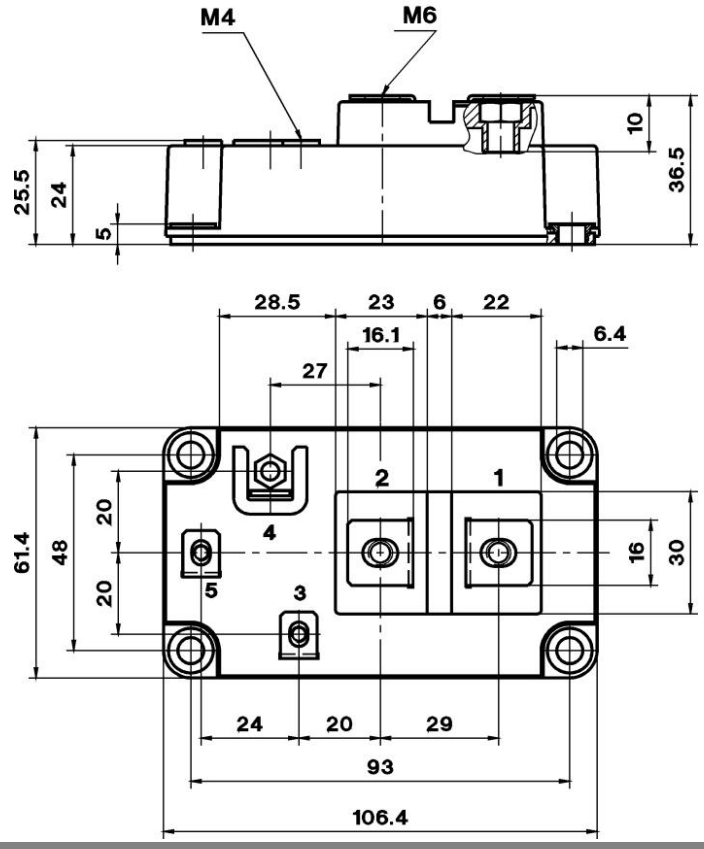
Absolute Maximum Ratings	T_{case} = 25°C, unless otherwise specified		
Symbol	**Conditions**	**Values**	**Units**
IGBT			
V_{CES}		1200	V
I_C	T_c = 25 (80) °C	760 (530)	A
I_{CRM}	t_p = 1 ms	1200	A
V_{GES}		± 20	V
T_{vj}, (T_{stg})	$T_{OPERATION} \leq T_{stg}$	- 40 ... +150 (125)	°C
V_{isol}	AC, 1 min.	4000	V
Inverse diode			
I_F	T_c = 25 (80) °C	720 (500)	A
I_{FRM}	t_p = 1 ms	1200	A
I_{FSM}	t_p = 10 ms; sin.; T_j = 150 °C	5000	A

Characteristics	T_{case} = 25°C, unless otherwise specified				
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, I_C = 24 mA	4,5	5,5	6,5	V
I_{CES}	V_{GE} = 0, $V_{CE} = V_{CES}$, T_j = 25 (125) °C		0,2	0,6	mA
$V_{CE(TO)}$	T_j = 25 (125) °C		1,5 (1,7)	1,75 (1,3)	V
r_{CE}	V_{GE} = 15 V, T_j = 25 (125) °C		2,8 (3,8)	3,3 (5,4)	mΩ
$V_{CE(sat)}$	I_{Cnom} = 600 A, V_{GE} = 15 V, chip level		3,2 (4)	3,75 (4,55)	V
C_{ies}	under following conditions		37		nF
C_{oes}	V_{GE} = 0, V_{CE} = 25 V, f = 1 MHz		5,6		nF
C_{res}			2,8		nF
L_{CE}				20	nH
$R_{CC'+EE'}$	res., terminal-chip T_c= 25 (125) °C		0,18 (0,22)		mΩ
$t_{d(on)}$	V_{CC} = 600 V, I_{Cnom} = 600 A				ns
t_r	$R_{Gon} = R_{Goff}$ = Ω, T_j = 125 °C				ns
$t_{d(off)}$	V_{GE} ± 15 V				ns
t_f					ns
E_{on} (E_{off})			52 (26)		mJ
Inverse diode					
$V_F = V_{EC}$	I_{Fnom} = 600 A; V_{GE} = 0 V; T_j = 25 (125) °C		2,3 (2,1)	2,5 (2,3)	V
$V_{(TO)}$	T_j = 25 (125) °C		1,1 (0,9)	1,3 (1,05)	V
r_T	T_j = 25 (125) °C		2 (2)	2 (2,1)	mΩ
I_{RRM}	I_{Fnom} = 600 A; T_j = 25 (125) °C				A
Q_{rr}	di/dt = A/µs				µC
E_{rr}	V_{GE} = 0 V				mJ
Thermal characteristics					
$R_{th(j-c)}$	per IGBT			0,03	K/W
$R_{th(j-c)D}$	per Inverse Diode			0,07	K/W
$R_{th(c-s)}$	per module			0,038	K/W
Mechanical data					
M_s	to heatsink M6	3		5	Nm
M_t	to terminals (M6(M4)	2,5 (1,1)		5 (2)	Nm
w				330	g

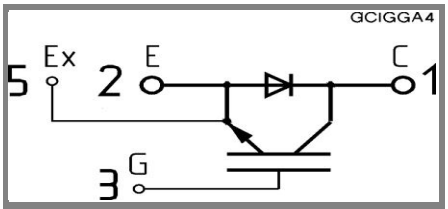
UL Recognized
File no. E 63 532

Dimensions in mm

CASED59



Case D 59



Case D 59 GA

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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