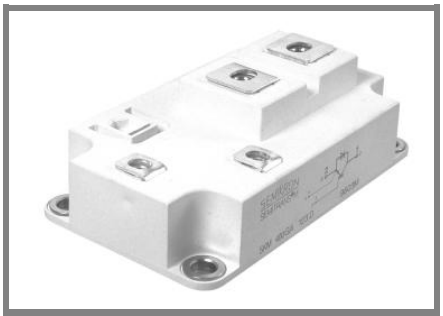
SKM 800GA125D



SEMITRANS® 4

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

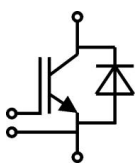
- $I_{DC} \leq 500$ A limited by terminals
- Take care of over-voltage caused by stray inductances

Absolute Maximum Ratings T_{case} = 25°C, unless otherwise specified

Symbol	Conditions		Values	Units
IGBT				
V_{CES}	T_j = 25 °C		1200	V
I_C	T_j = 150 °C	T_{case} = 25 °C	760	A
		T_{case} = 80 °C	530	A
I_{CRM}	I_{CRM}=2xI_{Cnom}		1200	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 600 V; $V_{GE} \leq$ 20 V; V_{CES} < 1200 V	T_j = 125 °C	10	µs
Inverse Diode				
I_F	T_j = 150 °C	T_{case} = 25 °C	720	A
		T_{case} = 80 °C	500	A
I_{FRM}	I_{FRM}=2xI_{Fnom}		1200	A
I_{FSM}	t_p = 10 ms; sin.	T_j = 150 °C	5700	A
Module				
$I_{t(RMS)}$			500	A
T_{vj}			- 40 ... +150 (125)	°C
T_{stg}			125	°C
V_{isol}	AC, 1 min.		4000	V

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, V_{CE} = V_{CES}	T_j = 25 °C		0,2	0,6	mA
		T_j = 125 °C				mA
V_{CE0}		T_j = 25 °C		1,5	1,75	V
		T_j = 125 °C		1,7	1,3	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		2,8	3,3	mΩ
		T_j = 125°C		3,8	5,4	mΩ
$V_{CE(sat)}$	I_{Cnom} = 600 A, V_{GE} = 15 V	T_j = °$C_{chiplev.}$		3,2	3,75	V
C_{ies}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		37		nF
C_{oes}				5,6		nF
C_{res}				2,8		nF
R_{Gint}	T_j = °C			1,7		Ω
$t_{d(on)}$	R_{Gon} = Ω	V_{CC} = 600V				ns
t_r		I_{Cnom}= 600A				ns
E_{on}		T_j = 125 °C		52		mJ
$t_{d(off)}$	R_{Goff} = 5 Ω	V_{GE} = ± 15V				ns
t_f						ns
E_{off}						mJ
$R_{th(j-c)}$	per IGBT				0,03	K/W



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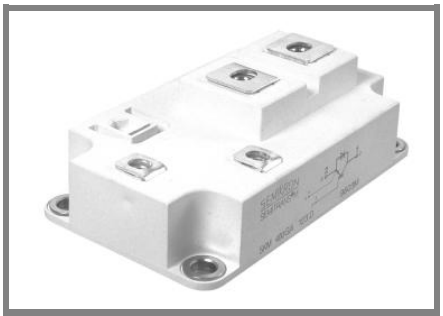
SKM 800GA125D



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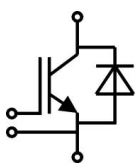

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Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
$V_F = V_{EC}$	I_{Fnom} = 600 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		2,3	2,5	V
		T_j = 125 °$C_{chiplev.}$		2,1	2,3	V
V_{F0}		T_j = °C				V
r_F		T_j = °C				mΩ
I_{RRM}	I_{Fnom} = 600 A	T_j = 25 °C				A
Q_{rr}						µC
E_{rr}	V_{GE} = 0 V; V_{CC} = 600 V					mJ
$R_{th(j-c)D}$	per diode				0,07	K/W
Module						
L_{CE}					20	nH
$R_{CC'+EE'}$	res., terminal-chip	T_{case}= 25 °C		0,18		mΩ
		T_{case}= 125 °C		0,22		mΩ
$R_{th(c-s)}$	per module				0,038	K/W
M_s	to heat sink M6		3		5	Nm
M_t	to terminals (M6(M4)		2,5 (1,1)		5 (2)	Nm
w					330	g

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

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

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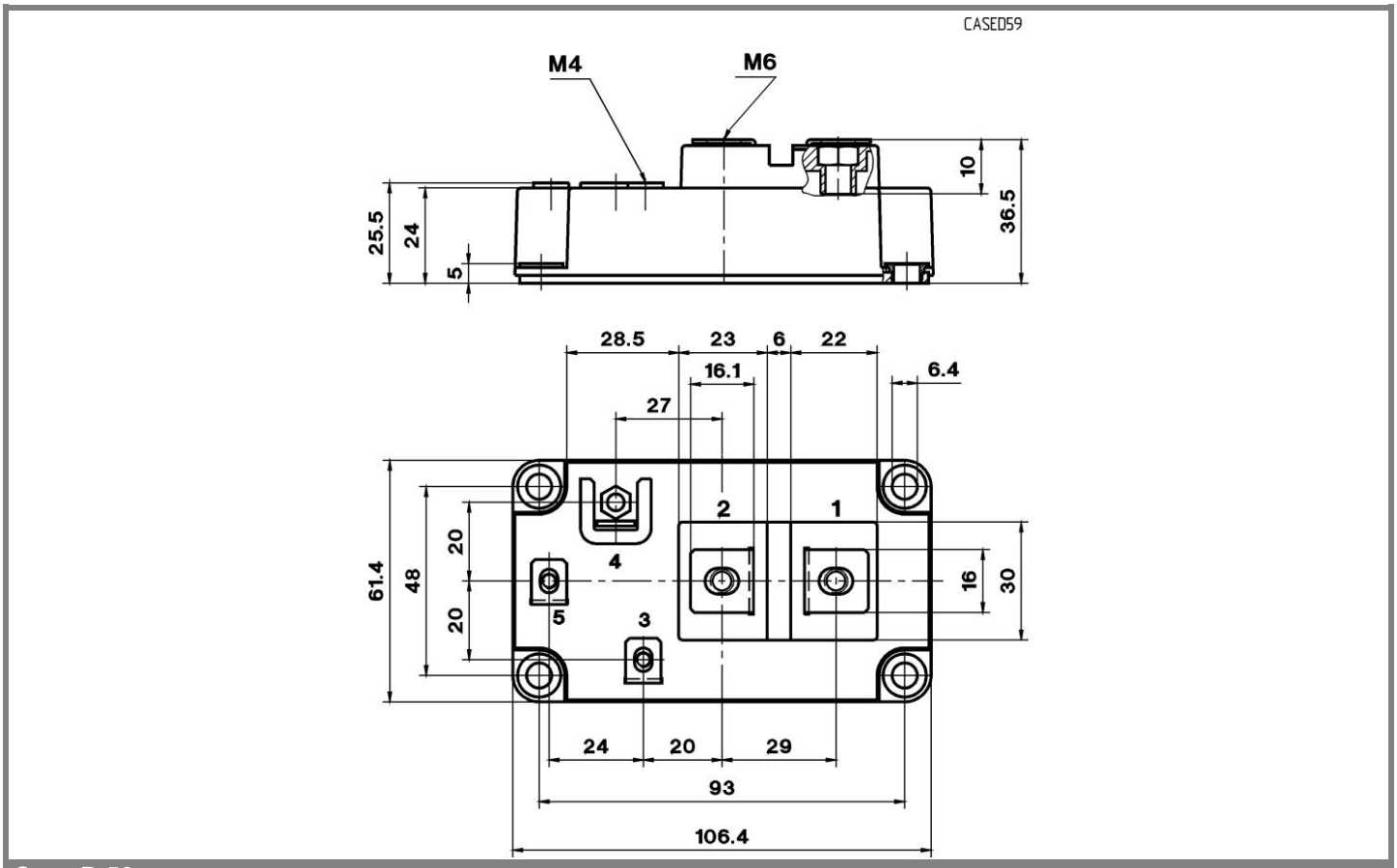

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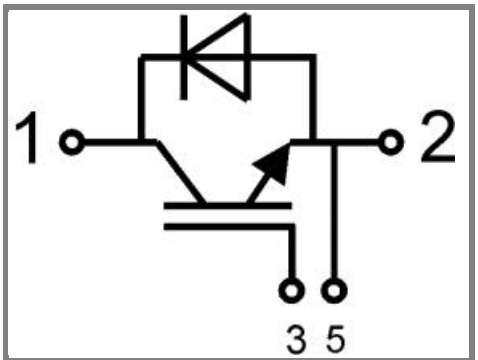

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