

SKM 22GD123D

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SEMITRANS® 6

Standard IGBT modules

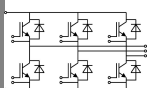
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Features

- MOS input (voltage controlled)
- N channel, homogeneous Si
- Low inductance case
- Very low tail current with low temperature dependence
- High short circuit capability, self limiting to $6 \times I_{Cnom}$
- Latch-up free
- Fast & soft inverse CAL diodes
- Isolated copper baseplate using DCB Direct Copper Bonding Technology
- Large clearance (9 mm) and creepage distances (13 mm)

Typical Applications

- Switched mode power supplies
- Three phase inverters for AC motor speed control
- General power switching applications
- Pulse frequencies also above 15 kHz



GD

注意

Absolute Maximum Ratings			$T_c = 25\text{ }^{\circ}\text{C}$, unless otherwise specified	
Symbol	Conditions		Values	Units
IGBT				
V_{CES}	$T_j = 25\text{ }^{\circ}\text{C}$		1200	V
I_C	$T_j = 150\text{ }^{\circ}\text{C}$	$T_{case} = 25\text{ }^{\circ}\text{C}$	25	A
		$T_{case} = 80\text{ }^{\circ}\text{C}$	15	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$		50	A
V_{GES}			± 20	V
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ }^{\circ}\text{C}$ $V_{CES} < 1200\text{ V}$		10	μs
Inverse Diode				
I_F	$T_j = 150\text{ }^{\circ}\text{C}$	$T_{case} = 25\text{ }^{\circ}\text{C}$	25	A
		$T_{case} = 80\text{ }^{\circ}\text{C}$	15	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$		50	A
I_{FSM}	$t_p = 10\text{ ms}; \sin.$	$T_j = 150\text{ }^{\circ}\text{C}$	200	A
Module				
$I_{t(RMS)}$			100	A
T_{vj}			- 40 ... + 175	$^{\circ}\text{C}$
T_{stg}			- 40...+ 125	$^{\circ}\text{C}$
V_{isol}	AC, 1 min.		2500	V

Characteristics			T _c = 25 °C, unless otherwise specified			
Symbol	Conditions		min.	typ.	max.	Units
IGBT						
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 1 mA		4,5	5,5	6,5	V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _J = 25 °C			0,3	0,9	mA
V _{CE0}	T _J = 25 °C			1,4	1,6	V
	T _J = 125 °C			1,6	1,8	V
r _{CE}	V _{GE} = 15 V T _J = 25°C			73,33	93,33	mΩ
	T _J = 125°C			100	126,66	mΩ
V _{CE(sat)}	I _{Cnom} = 15 A, V _{GE} = 15 V T _J = °C _{chiplev.}			2,5	3	V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz			1		nF
C _{oes}				0,15		nF
C _{res}				0,07		nF
t _{d(on)}	R _{Gon} = 52 Ω	V _{CC} = 600V I _{Cnom} = 25A		40		ns
t _r				35		ns
E _{on}	R _{Goff} = 52 Ω	T _J = 125 °C V _{GE} = -15V		2		mJ
t _{d(off)}				350		ns
t _f				70		ns
E _{off}				1,4		mJ
R _{th(j-c)}	per IGBT				0,86	K/W

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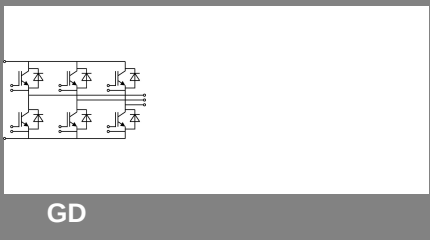
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应用

Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
$V_F = V_{EC}$	$I_{Fnom} = 15\text{ A}; V_{GE} = 0\text{ V}$	$T_J = 25\text{ }^{\circ}\text{C}_{chiplev.}$ $T_J = 125\text{ }^{\circ}\text{C}_{chiplev.}$		2 1,8	2,5	V V
V_{F0}		$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$		1,1	1,2	V V
r_F		$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$		60	87	mΩ mΩ
I_{RRM} Q_{rr} E_{rr}	$I_{Fnom} = 15\text{ A}$ $V_{GE} = 0\text{ V}; V_{CC} = 600\text{ V}$	$T_J = 125\text{ }^{\circ}\text{C}$		16 2,7 0,95		A μC mJ
$R_{th(j-c)D}$	per diode				1,5	K/W
Module						
L_{CE}					60	nH
$R_{th(c-s)}$	per module				0,05	K/W
M_s	to heat sink M5		4		5	Nm
w					175	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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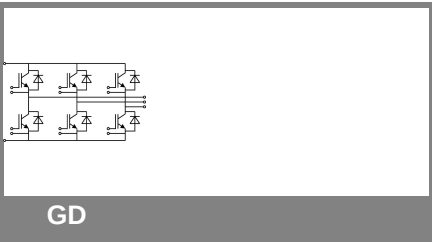
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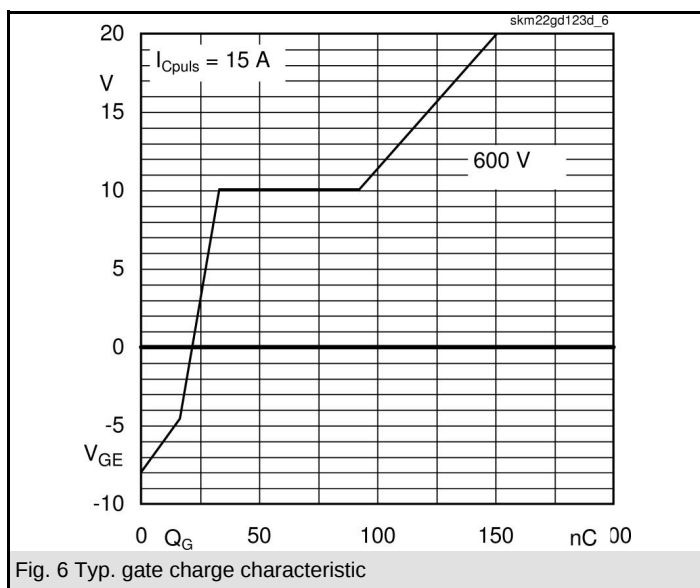
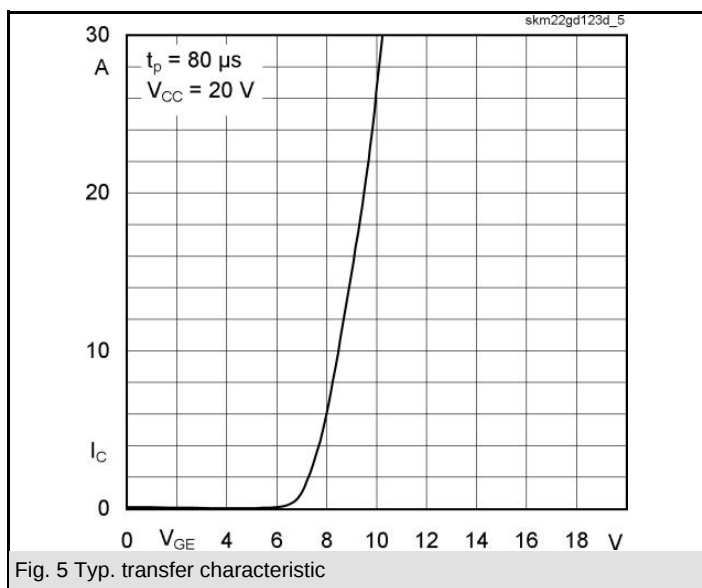
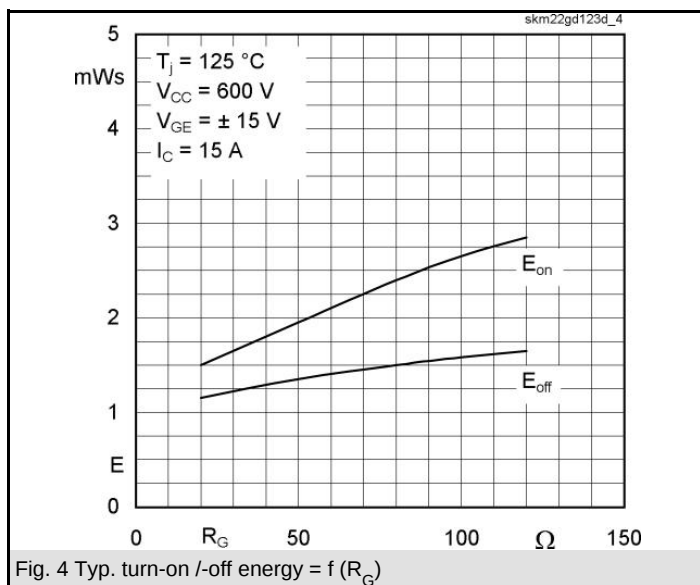
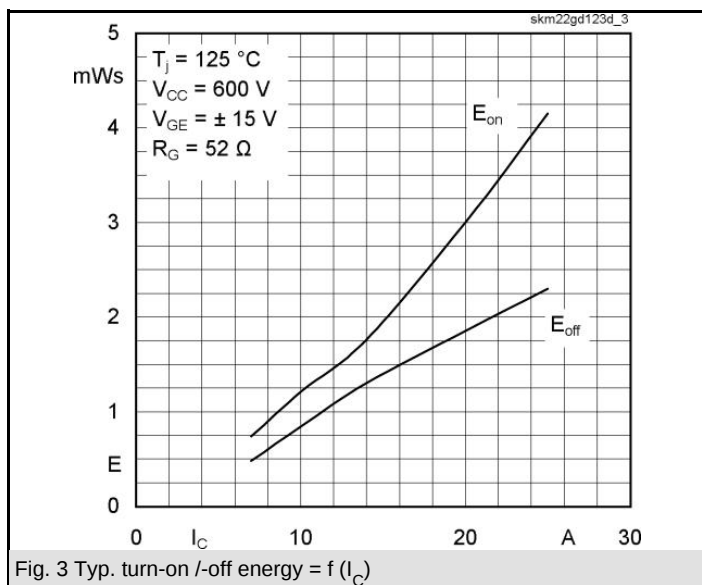
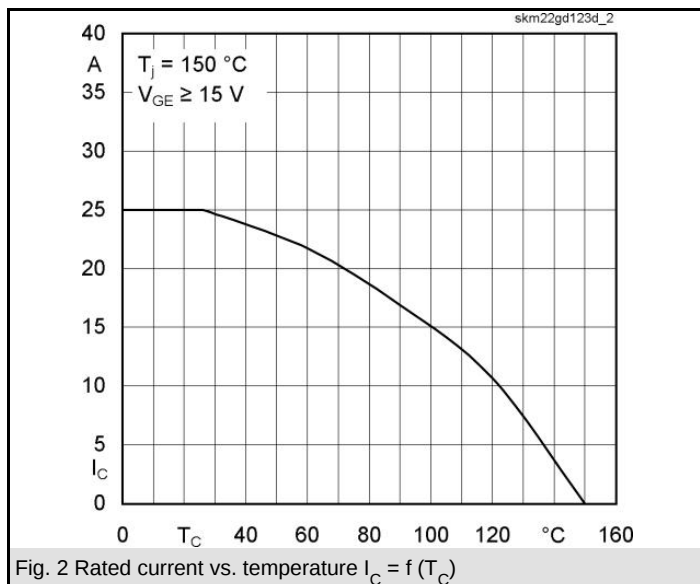
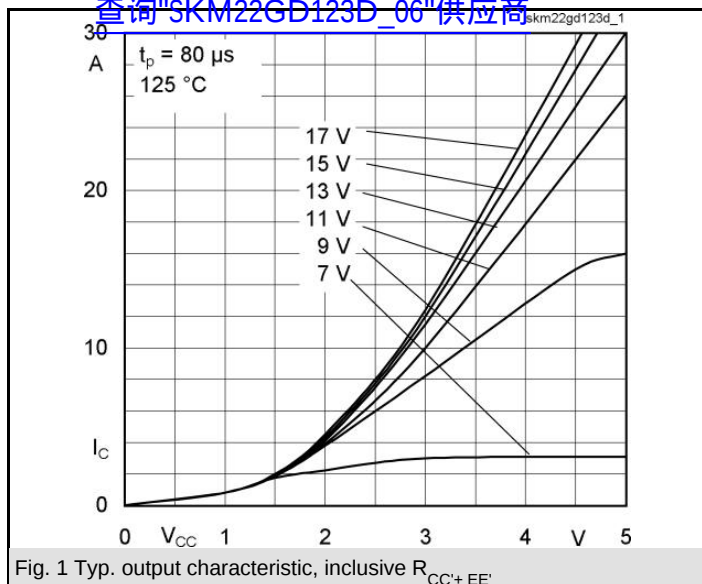
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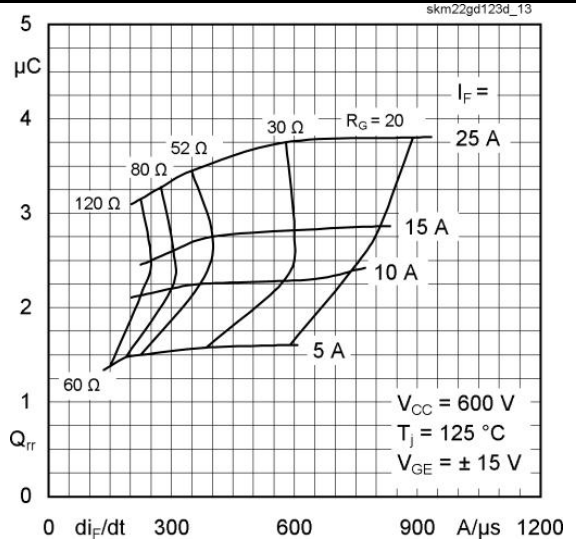
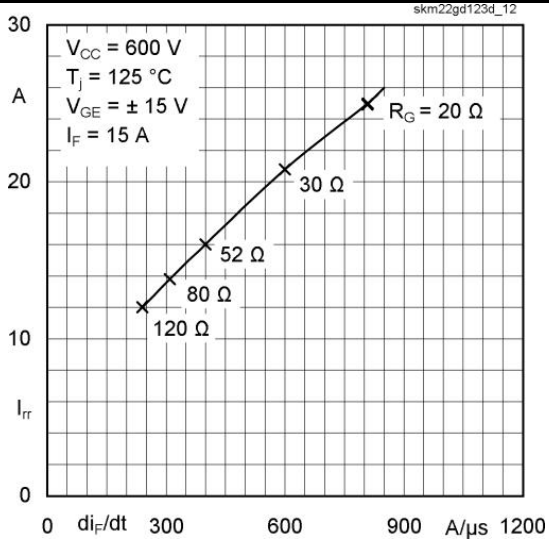
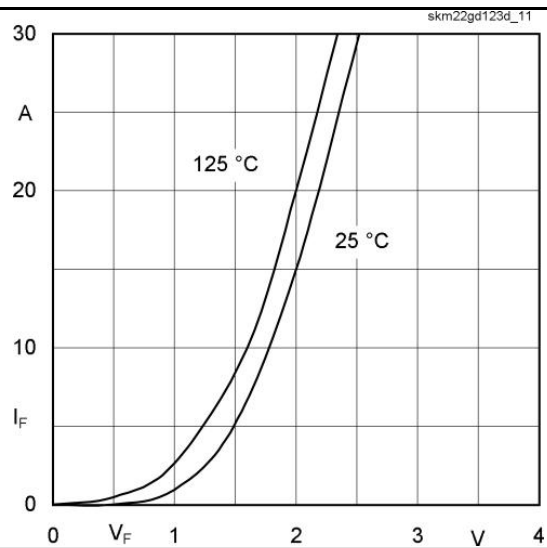
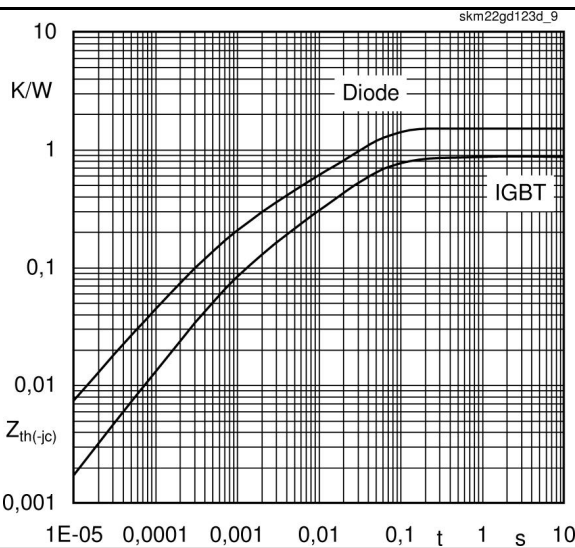
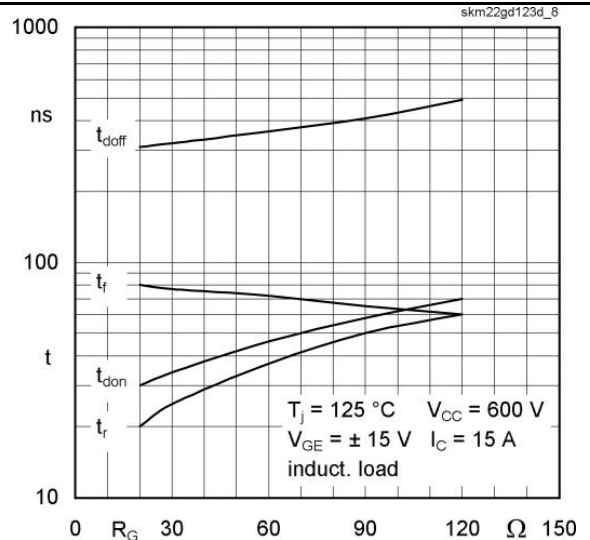
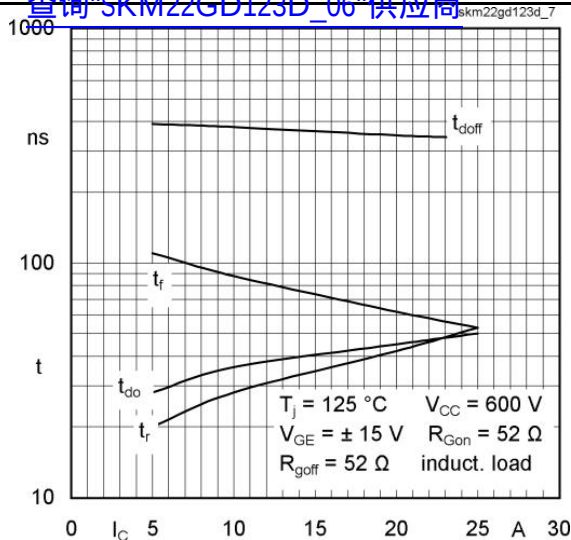


Z _{th}			
Symbol	Conditions	Values	Units
Z _{th(j-c)I}			
R _i	i = 1	560	mk/W
R _i	i = 2	220	mk/W
R _i	i = 3	67	mk/W
R _i	i = 4	13	mk/W
tau _i	i = 1	0,056	s
tau _i	i = 2	0,0078	s
tau _i	i = 3	0,017	s
tau _i	i = 4	0,0001	s
Z _{th(j-c)D}			
R _i	i = 1	800	mk/W
R _i	i = 2	400	mk/W
R _i	i = 3	270	mk/W
R _i	i = 4	30	mk/W
tau _i	i = 1	0,0761	s
tau _i	i = 2	0,0013	s
tau _i	i = 3	0,011	s
tau _i	i = 4	0,002	s

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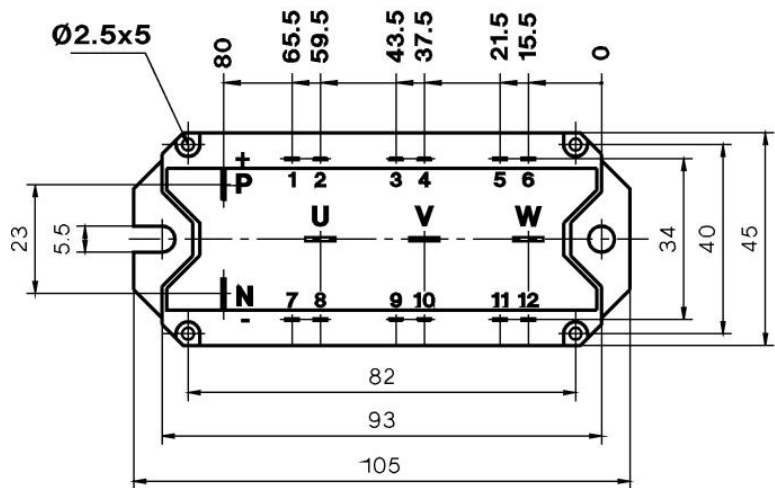
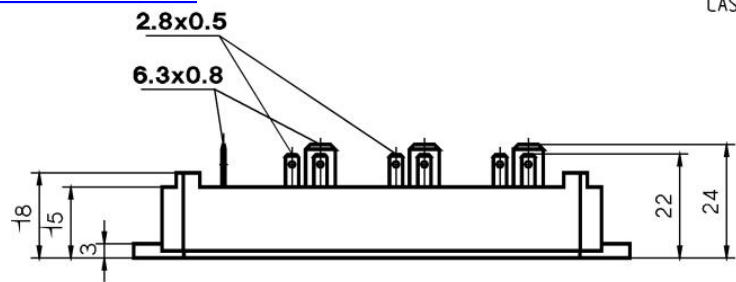


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