SKM100GB125DN

Features

- ►High short circuit capability,self limiting short circuit current
- ►IGBT CHIP(Highly rugged SPT+ design)
- ►VCE(sat) with positive temperature coefficient
- ►Ultra Low Loss, High ruggedness
- ►Free wheeling diodes with fast and soft reverse recovery

Applications

- ►AC motor control
- ►Inverter and power supplies
- ►Motion/servo control
- ►Photovoltaic/Fuel cell

Absolute Maximum Ratings Tc=25ºC, unless otherwise specified

Symbol	Conditions		Values	Units
IGBT				
V_{CES}	Tj=25ºC		1200	V
I_C	Tj=150ºC	Tcase=25ºC	100	V
		Tcase=85ºC	80	V
I_{CRM}	I_{CRM}=2xI_{Cnom}		150	A
V_{GES}			±20	V
t_{psc}	V_{CC}=600V;V_{GE} ≤ 20V;V_{CES}<1200V	Tj=125ºC	10	μs
Inverse Diode				
I_F	Tj=150ºC	Tcase=25ºC	95	A
		Tcase=80ºC	65	A
I_{FRM}	I_{FRM}=2xI_{Fnom}		150	A
I_{FSM}	t_p=10ms; sin.	Tj=150ºC	720	A
Module				
$I_{t(RMS)}$			200	A
T_{vj}			-40...+150	ºC
T_{stg}			125	ºC
V_{isol}	AC, 1min.		4000	V

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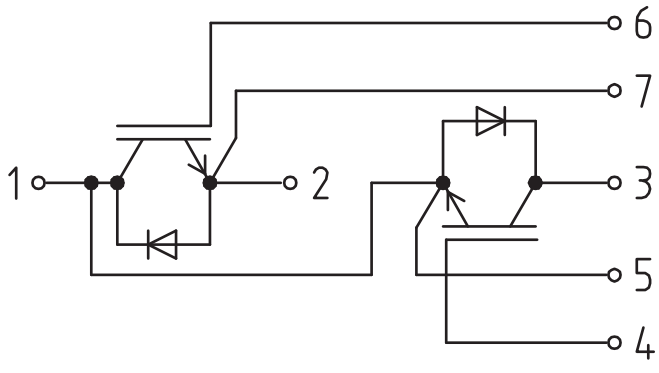
Characteristics Tc=25ºC, unless otherwise specified

Symbol	Conditions		min.	typ.	max.	Units
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 2mA		4.5	5.5	6.5	V
I_{CES}	V_{GE} = 0V, V_{CE} = V_{CES}	Tj=25ºC		0.15	0.45	mA
		Tj=125ºC				mA
V_{CE0}		Tj=25ºC				V
		Tj=125ºC				V
r_{CE}	V_{GE} = 15V	Tj=25ºC				mΩ
		Tj=125ºC				mΩ
$V_{CE(sat)}$	I_{Cnom} =75A, V_{GE}=15V	Tj=ºCchiplev.		3.3	3.85	V
C_{ies}	V_{CE} = 25V,V_{GE} = 0V	f =1 MHz		5	6.6	nF
C_{oes}				0.72	0.9	nF
C_{res}				0.38	0.5	nF
Q_G	V_{GE} = 0-+20V			650		nC
R_{Gint}		Tj=ºC		5		Ω
$t_{d(on)}$	R_{Gon} =8Ω	V_{CC} = 600V I_C = 75A Tj=125ºC V_{GE} = ±15V		80		ns
t_r				40		ns
E_{on}				9		mJ
$t_{d(off)}$	R_{Goff} =8Ω			360		ns
t_f				20		ns
E_{off}				3.5		mJ
$R_{th(j-c)}$	per IGBT				0.18	K/W
Inverse Diode						
V_F = V_{EC}	I_{Fnom} = 75A; V_{GE}=0V	Tj=25ºCchiplev.		2	2.5	V
		Tj=125ºCchiplev.		1.8		V
V_{F0}		Tj=25ºC		1.1	1.2	V
		Tj=125ºC				V
r_F		Tj=25ºC		12	17.3	mΩ
		Tj=125ºC				mΩ
I_{RRM}	I_F=75A di/dt=800A/µs V_{GE} = 0V; V_{CC}=600V	Tj=125ºC		50		A
Q_{rr}				11.5		µC
E_{rr}				4		mJ
$R_{th(j-c)D}$	per diode				0.5	K/W
Module						
L_{CE}				20	25	nH
$R_{CC'+EE'}$	res.terminal-chip	Tcase=25ºC		0.75		mΩ
		Tcase=125ºC		1		mΩ
$R_{th(c-s)}$	per module				0.05	K/W
M_s	to heat sink M6		3		5	Nm
M_t	to heat sink M5		2.5		5	Nm
W					160	g

Symbol	Conditions	Values	Units
Zth(j-c)I			
Rj	i = 1	95	mk/W
Rj	i = 2	65	mk/W
Rj	i = 3	17.5	mk/W
Rj	i = 4	2.5	mk/W
taui	i = 1	0.0327	s
taui	i = 2	0.08	s
taui	i = 3	0.017	s
taui	i = 4	0.008	s
Zth(j-c)D			
Rj	i = 1	300	mk/W
Rj	i = 2	160	mk/W
Rj	i = 3	36	mk/W
Rj	i = 4	4	mk/W
taui	i = 1	0.054	s
taui	i = 2	0.001	s
taui	i = 3	0.0015	s
taui	i = 4	0.1	s

Circuit Diagram



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Package Outline