

SKM 200 GB 128 D

Absolute Maximum Ratings		$T_{case} = 25\text{ °C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	$T_{case} = 25\text{ (80) °C}$	285 (205)	A
I_{CRM}	$T_{case} = 25\text{ (80) °C}$, $t_p = 1\text{ ms}$	650 (470)	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			
$I_{FAV} = -I_C$	$T_{case} = 25\text{ (80) °C}$	190 (130)	A
I_{FRM}	$T_{case} = 25\text{ (80) °C}$, $t_p < 1\text{ ms}$	650 (470)	A
I_{FSM}	$t_p = 10\text{ ms}$; sin.; $T_j = 150\text{ °C}$	1450	A
Freewheeling Diode			
$I_{FAV} = -I_C$	$T_{case} = 25\text{ (80) °C}$		A
I_{FRM}	$T_{case} = 25\text{ (80) °C}$, $t_p < 1\text{ ms}$		A
I_{FSM}	$t_p = 10\text{ ms}$; sin.; $T_j = 150\text{ °C}$		A

SEMITRANS™ M SPT IGBT Module

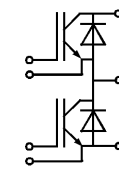
SKM 200 GB 128 D

Preliminary Data



SEMITRANS 3

Characteristics		$T_{case} = 25\text{ °C}$, unless otherwise specified			Units
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(TO)}$	$V_{GE} = V_{CE}$, $I_C = 6\text{ mA}$	4,5	5,5	6,45	V
I_{CES}	$V_{GE} = 0$, $V_{CE} = V_{CES}$, $T_j = 25\text{ (125) °C}$			tbd	mA
$V_{CE(TO)}$	$T_j = 25\text{ (125) °C}$		1,0 (0,9)	1,15	V
r_{CE}	$V_{GE} = 15\text{ V}$, $T_j = 25\text{ (125) °C}$		6,7 (9,3)	8,3(tbd)	mΩ
$V_{CE(sat)}$	$I_C = 150\text{ A}$, $V_{GE} = 15\text{ V}$, chip level		2,0 (2,3)	2,4	V
C_{ies}			13		nF
C_{oes}	$V_{GE} = 0$, $V_{CE} = 25\text{ V}$, $f = 1\text{ MHz}$		2		nF
C_{res}			2		nF
L_{CE}				20	nH
R_{CC+EE}	resistance, terminal-chip 25 (125) °C		0,35 (0,5)		mΩ
$t_{d(on)}$	under following conditions: $V_{CC} = 600\text{ V}$, $I_C = 150\text{ A}$		125		ns
t_r	$R_{Gon} = R_{Goff} = 7\text{ Ω}$, $T_j = 125\text{ °C}$,		50		ns
$t_{d(off)}$	$V_{GE} \pm 15\text{ V}$		620		ns
t_f			55		ns
$E_{on} (E_{off})$			18 (15)		mJ
Inverse Diode under following conditions:					
$V_F = V_{EC}$	$I_F = 150\text{ A}$; $V_{GE} = 0\text{ V}$; $T_j = 25\text{ (125) °C}$		2,0 (1,8)	2,5	V
$V_{T(TO)}$	$T_j = 25\text{ (125) °C}$		1,1 (tbd)	1,2	V
r_T	$T_j = 25\text{ (125) °C}$		6 (tbd)	8,7(tbd)	mΩ
I_{RRM}	$I_F = 150\text{ A}$; $T_j = 125\text{ °C}$		190		A
Q_{rr}	$di/dt = 4800\text{ A/μs}$		24		μC
E_{rr}	$V_{GE} = 0\text{ V}$		8		mJ
FWD under following conditions:					
$V_F = V_{EC}$	$I_F = A$; $V_{GE} = 0\text{ V}$; $T_j = 25\text{ (125) °C}$				V
V_{TO}	$T_j = 25\text{ (125) °C}$				V
r_T	$T_j = 25\text{ (125) °C}$				mΩ
I_{RRM}	$I_F = A$; $T_j = 125\text{ °C}$				A
Q_{rr}	$V_{GE} = 0\text{ V}$				μC
E_{rr}					mJ
Thermal Characteristics					
$R_{th(j-c)}$	per IGBT			0,095	K/W
$R_{th(j-c)D}$	per Inverse Diode			0,25	K/W
$R_{th(j-c)FD}$	per FWD			-	K/W
$R_{th(c-s)}$	per module			0,038	K/W
Mechanical Data					
M_s	to heatsink (M6)	3		5	Nm
M_t	for terminals (M5)	2,5		5	Nm
w				325	g



GB

Features

- Homogeneous Si
- SPT = Soft-Punch-Through technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications

- AC inverter drives
- UPS
- Electronic welders f_{sw} up to 20kHz