

SEMITOP® 2

### **IGBT** Module

#### SK 60 GM 123

**Target Data** 

#### **Features**

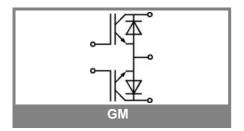
- · Compact design
- · One screw mounting
- Heat transfer and isolation through direct copper bonding aluminium oxide ceramic (DBC)
- · High short circuit capability
- Low tail current with low temperature dependence

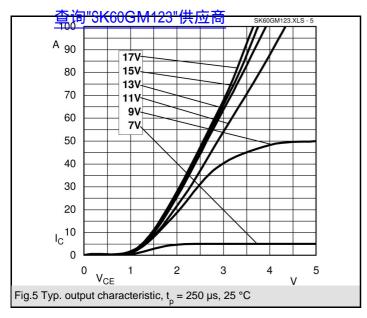
### **Typical Applications**

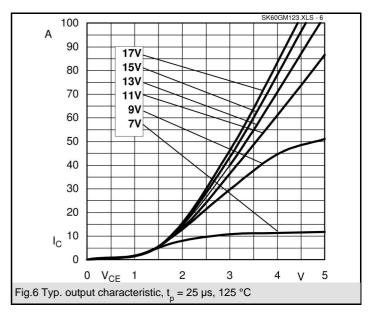
- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS

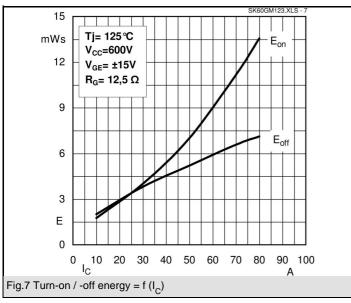
Absolute	Maximum Ratings	T <sub>s</sub> = 25 °C, unless otherwise specified						
Symbol	Conditions	Values	Units					
IGBT								
$V_{CES}$		1200	V					
$V_{GES}$		± 20	V					
I <sub>C</sub>	T <sub>s</sub> = 25 (80) °C;	60 (40)	Α					
I <sub>CM</sub>	$t_p < 1 \text{ ms}; T_s = 25 (80) °C;$	120 (80)	Α					
T <sub>j</sub>		- 40 <b>+</b> 150	°C					
Inverse/Freewheeling CAL diode								
I <sub>F</sub>	T <sub>s</sub> = 25 (80) °C;	60 (40)	Α					
$I_{FM} = -I_{CM}$	$t_p < 1 \text{ ms}; T_s = 25 (80) ^{\circ}\text{C};$	120 (80)	Α					
T <sub>j</sub>		- 40 <b>+</b> 150	°C					
T <sub>stg</sub>		- 40 <b>+</b> 125	°C					
T <sub>sol</sub>	Terminals, 10 s	260	°C					
V <sub>isol</sub>	AC 50 Hz, r.m.s. 1 min. / 1 s	2500 / 3000	V					

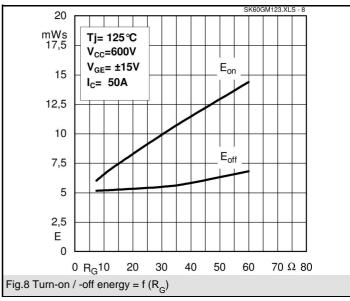
Characteristics T <sub>s</sub> = 25 °C, unless otherwise specified								
Characteristics								
Symbol	Conditions	min.	typ.	max.	Units			
	IGBT							
V <sub>CE(sat)</sub>	$I_C = 50 \text{ A}, T_j = 25 (125) °C$		2,5 (3,1)	3 (3,7)	V			
$V_{GE(th)}$	$V_{CE} = V_{GE}; I_{C} = 0,002 A$	4,5	5,5	6,5	V			
C <sub>ies</sub>	$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; 1 \text{ MHz}$		3,3		nF			
$R_{th(j-s)}$	per IGBT			0,6	K/W			
	per module				K/W			
	under following conditions:							
t <sub>d(on)</sub>	$V_{CC} = 600 \text{ V}$ , $V_{GE} = \pm 15 \text{ V}$		48		ns			
t <sub>r</sub> `´	I <sub>C</sub> = 50 A, T <sub>i</sub> = 125 °C		54		ns			
$t_{d(off)}$	$R_{Gon} = R_{Goff} = 12.5 \Omega$		360		ns			
t <sub>f</sub>			54		ns			
$E_{on} + E_{off}$	Inductive load		12,2		mJ			
Inverse/F	Inverse/Freewheeling CAL diode							
$V_F = V_{EC}$	I <sub>F</sub> = 50 A; T <sub>i</sub> = 25 (125) °C	1	2 (1,8)	2,5	V			
V <sub>(TO)</sub>	T <sub>j</sub> = (125) °C		(1)	(1,2)	V			
r <sub>T</sub>	T <sub>j</sub> = (125) °C		(16)	(22)	mΩ			
$R_{th(j-s)}$				0,7	K/W			
	under following conditions:							
I <sub>RRM</sub>	I <sub>F</sub> = 44 A; V <sub>R</sub> = 600 V		50		Α			
$Q_{rr}$	$dI_F/dt = -500 \text{ A/}\mu\text{s}$		9		μC			
E <sub>off</sub>	$V_{GE} = 0 \text{ V}; T_j = 125 ^{\circ}\text{C}$		2		mJ			
Mechanic	cal data							
M1	mounting torque			2	Nm			
w			21		g			
Case	SEMITOP® 2		T 35					

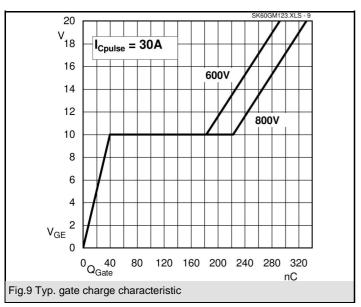


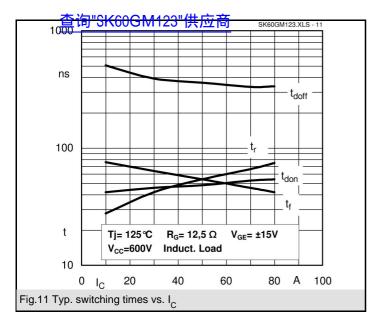


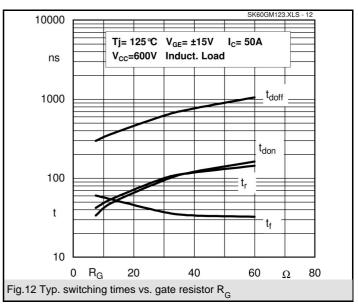


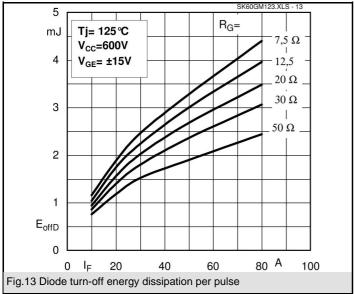


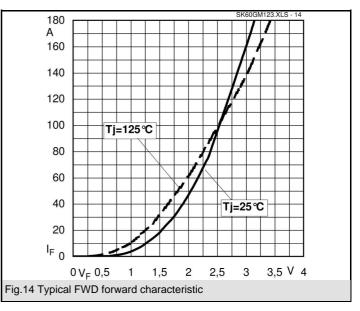


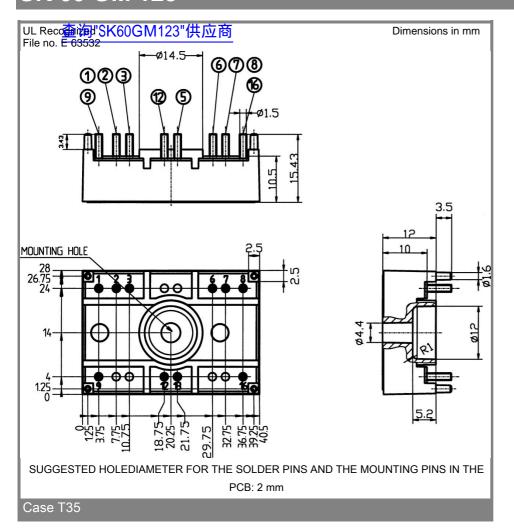


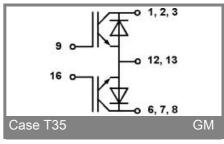












This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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