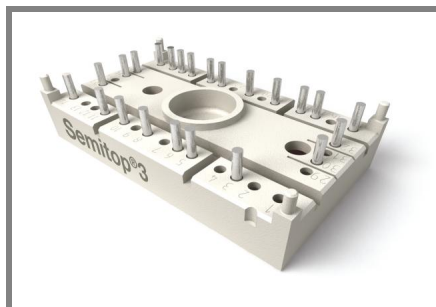




SEMITOP® 3

IGBT Module

SK80GB063

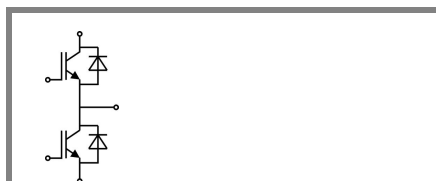
Preliminary Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- High short circuit capability
- Low tail current with low temperature dependence
- Integrated PTC temperature sensor

Typical Applications

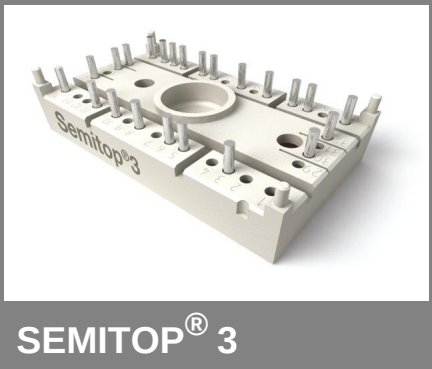
- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS



GB

Absolute Maximum Ratings		T _s = 25 °C, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V _{CES}	T _j = 25 °C	600	V	
I _C	T _j = 125 °C	T _s = 25 °C	81	A
		T _s = 80 °C	57	A
I _{CRM}	I _{CRM} = 2 x I _{Cnom}	200	A	
V _{GES}		± 20	V	
t _{psc}	V _{CC} = 300 V; V _{GE} ≤ 20 V; T _j = 125 °C V _{CES} < 600 V	10	μs	
Inverse Diode				
I _F	T _j = 150 °C	T _s = 25 °C	79	A
		T _s = 80 °C	53	A
I _{FRM}	I _{FRM} = 2 x I _{Fnom}	150	A	
I _{FSM}	t _p = 10 ms; half sine wave T _j = 150 °C	720	A	
Module				
I _{t(RMS)}			A	
T _{vj}		-40 ... +150	°C	
T _{stg}		-40 ... +125	°C	
V _{isol}	AC, 1 min.	2500	V	

Characteristics		$T_s = 25\text{ °C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1,5\text{ mA}$	4,5	5,5	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$			0,3	$T_j = 25\text{ °C}$ mA
					$T_j = 125\text{ °C}$ mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = 30\text{ V}$			300	$T_j = 25\text{ °C}$ nA
					$T_j = 125\text{ °C}$ nA
V_{CE0}			1		$T_j = 25\text{ °C}$ V
					$T_j = 125\text{ °C}$ V
r_{CE}	$V_{GE} = 15\text{ V}$		11		$T_j = 25\text{ °C}$ $\text{m}\Omega$
					$T_j = 125\text{ °C}$ $\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 100\text{ A}$, $V_{GE} = 15\text{ V}$		2,1	2,5	$T_j = 25\text{ °C}_{chiple v.}$ V
					$T_j = 125\text{ °C}_{chiple v.}$ V
C_{ies}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$		4,3		nF
C_{oes}					nF
C_{res}					nF
Q_G	$V_{GE} = 0 \dots 20\text{ V}$		310		nC
$t_{d(on)}$	$R_{Gon} = 10\text{ }\Omega$		50		ns
t_r					ns
E_{on}	$R_{Goff} = 10\text{ }\Omega$		40		$V_{CC} = 300\text{ V}$ $I_{Cnom} = 100\text{ A}$ $T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$ mJ
$t_{d(off)}$					ns
t_f					ns
E_{off}					mJ
$R_{th(j-s)}$	per IGBT			0,6	K/W



IGBT Module

SK80GB063

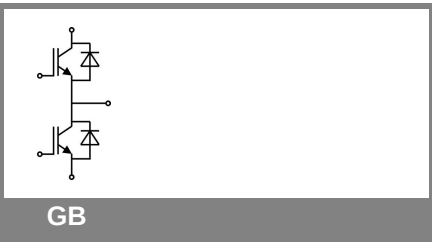
Preliminary Data

Features

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Typical Applications

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- UPS



Characteristics						
Symbol	Conditions		min.	typ.	max.	Units
Inverse Diode						
V _F = V _{EC}	I _{Fnom} = 60 A; V _{GE} = 0 V	T _j = 25 °C _{chiplev.}		1,4		V
		T _j = 125 °C _{chiplev.}		1,3		V
V _{F0}		T _j = 125 °C		0,85	0,9	V
r _F		T _j = 125 °C		6,5	11	mΩ
I _{RRM}	I _{Fnom} = 60 A di/dt = -3000 A/μs V _{CC} = 300V	T _j = 125 °C		90		A
Q _{rr}				7		μC
E _{rr}				1,2		mJ
R _{th(j-s)D}	per diode				0,9	K/W
M _s	to heat sink M1		2,25		2,5	Nm
w				30		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.

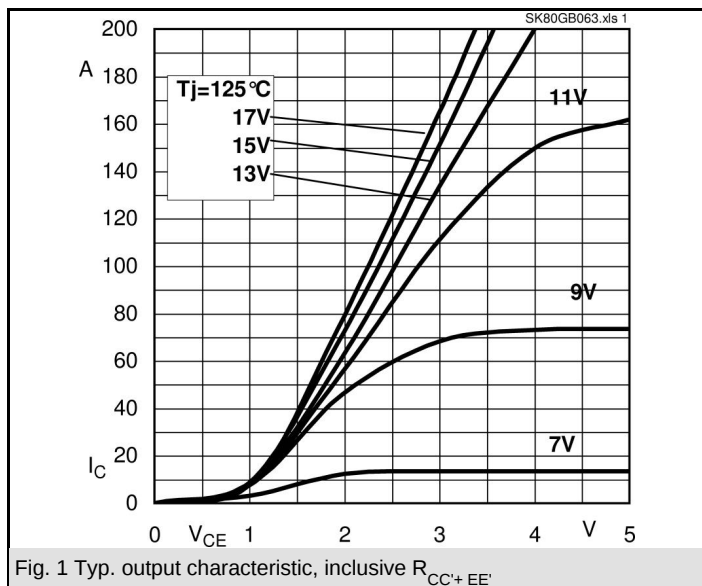


Fig. 1 Typ. output characteristic, inclusive $R_{CC'+EE'}$

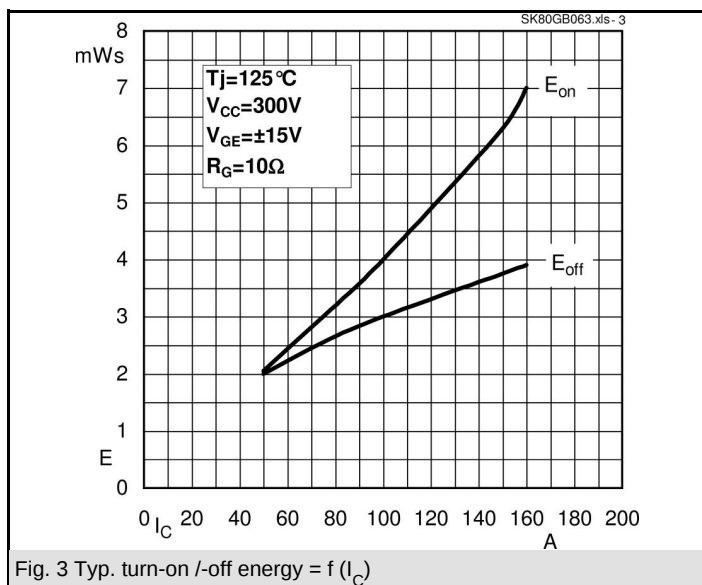


Fig. 3 Typ. turn-on /off energy = $f(I_C)$

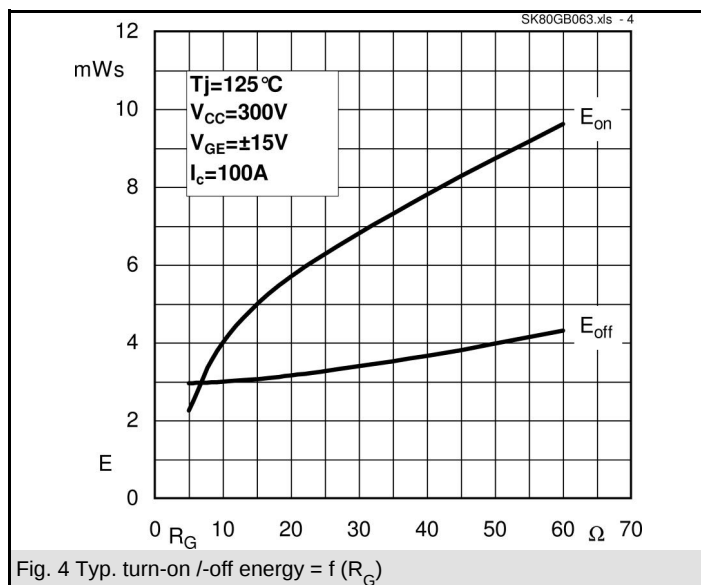


Fig. 4 Typ. turn-on /off energy = $f(R_G)$

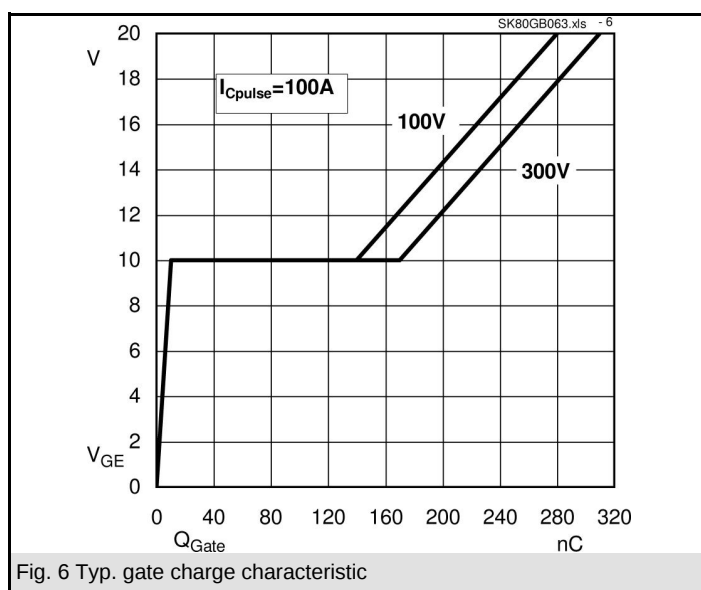
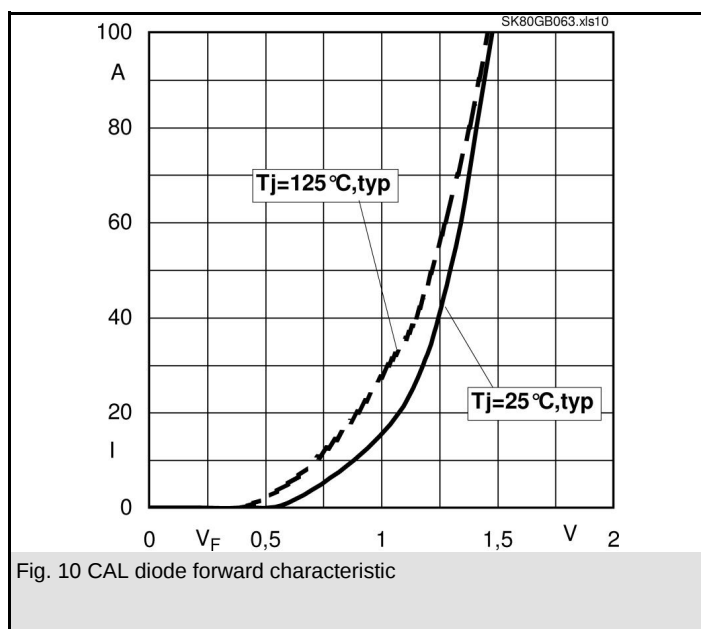
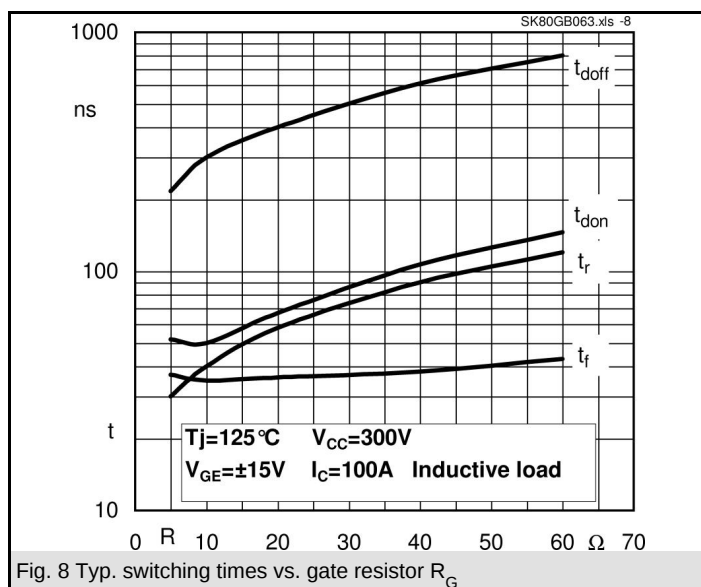
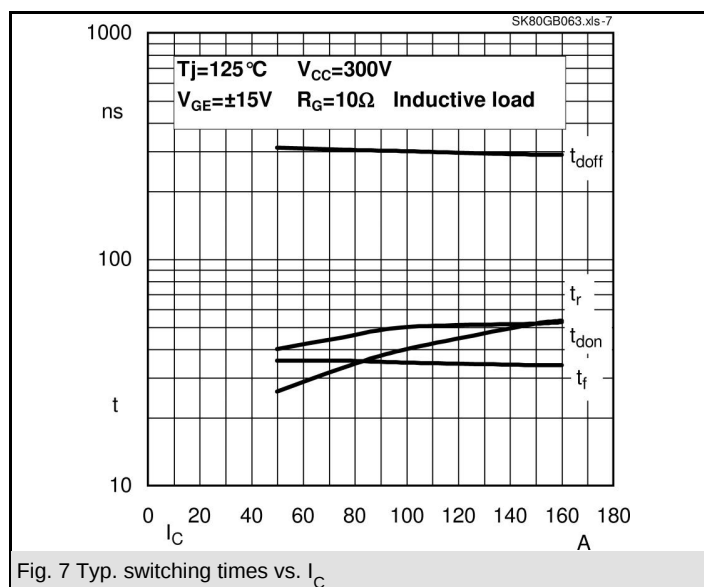
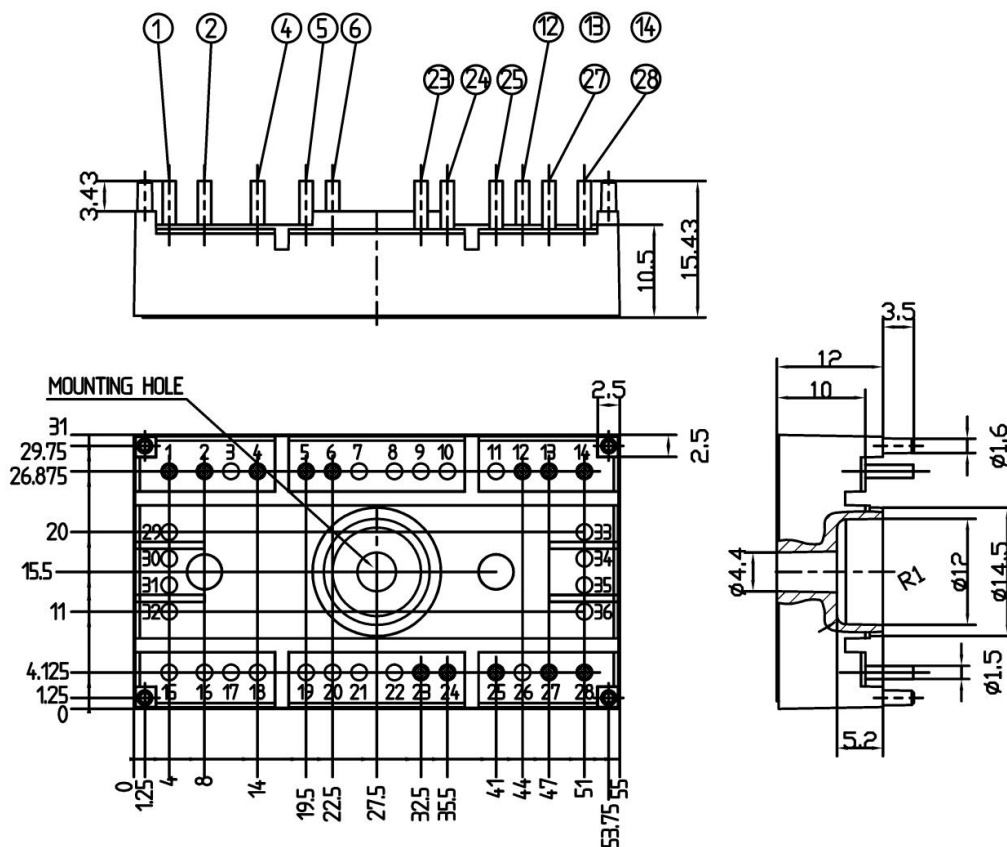
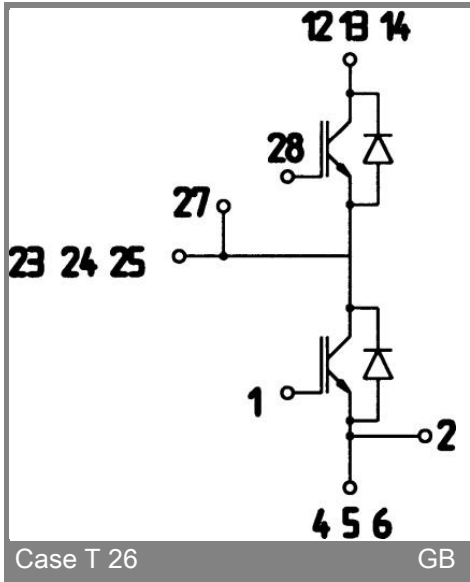


Fig. 6 Typ. gate charge characteristic





Case T26 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 26

GB