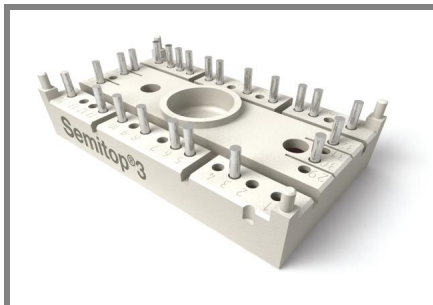


SK25GAD063T



SEMITOP[®] 3

IGBT Module

SK25GAD063T

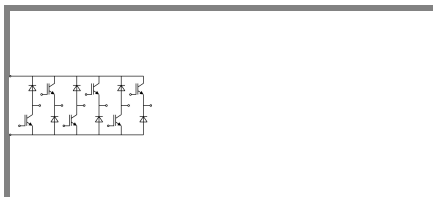
Preliminary Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminium oxide ceramic (DCB)
- N channel, homogeneous Silicon structure (NPT-Non punchthrough IGBT)
- High short circuit capability
- Low tail current with low temperature dependence
- UL recognized, file no. E63 532
- Integrated PTC temperature sensor

Typical Applications

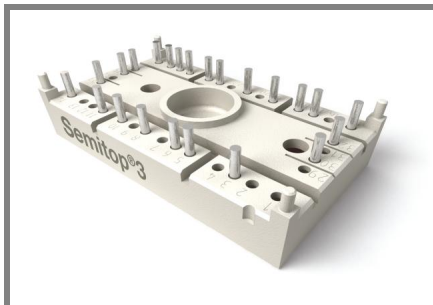
- Switching (not for linear use)
- Inverter
- Switched mode power supplies
- UPS



GAD

Absolute Maximum Ratings		$T_s = 25\text{ °C}$, unless otherwise specified		
Symbol	Conditions	Values		Units
IGBT				
V_{CES}	$T_j = 25\text{ °C}$	600		V
I_C	$T_j = 125\text{ °C}$	$T_s = 25\text{ °C}$	30	A
		$T_s = 80\text{ °C}$	21	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	60		A
V_{GES}		± 20		V
t_{psc}	$V_{CC} = 300\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125\text{ °C}$ $V_{CES} < 600\text{ V}$	10		µs
Inverse Diode				
I_F	$T_j = 150\text{ °C}$	$T_s = 25\text{ °C}$		A
		$T_s = 80\text{ °C}$		A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$			A
Freewheeling Diode				
I_F	$T_j = 150\text{ °C}$	$T_{case} = 25\text{ °C}$	36	A
		$T_{case} = 80\text{ °C}$	24	A
I_{FRM}				A
I_{FSM}	$t_p = 10\text{ ms}; \text{half sine wave } T_j = 150\text{ °C}$	200		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					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 0,7\text{ mA}$	4,5	5,5	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$		0,1	mA
		$T_j = 125\text{ °C}$			mA
I_{GES}	$V_{CE} = 0\text{ V}, V_{GE} = 30\text{ V}$	$T_j = 25\text{ °C}$		120	nA
		$T_j = 125\text{ °C}$			nA
V_{CE0}		$T_j = 25\text{ °C}$	1,2		V
		$T_j = 125\text{ °C}$	0,8		V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	30		mΩ
		$T_j = 125\text{ °C}$	47		mΩ
$V_{CE(sat)}$	$I_{Cnom} = 30\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	2,1	2,5	V
		$T_j = 125\text{ °C}_{chiplev.}$	2,2		V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	1,35		nF
C_{oes}					nF
C_{res}			0,12		nF
$t_{d(on)}$	$R_{Gon} = 33\text{ } \Omega$	$V_{CC} = 300\text{ V}$ $I_{Cnom} = 25\text{ A}$	40		ns
t_r			50		ns
E_{on}	$R_{Goff} = 33\text{ } \Omega$	$T_j = 125\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	1,3		mJ
$t_{d(off)}$			200		ns
t_f			25		ns
E_{off}			0,9		mJ
$R_{th(j-s)}$	per IGBT			1,4	K/W



SEMITOP® 3

IGBT Module

SK25GAD063T

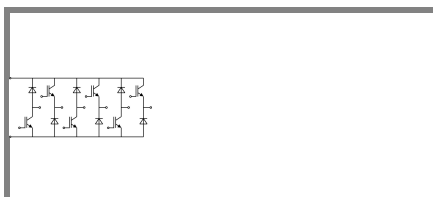
Preliminary Data

Features

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Typical Applications

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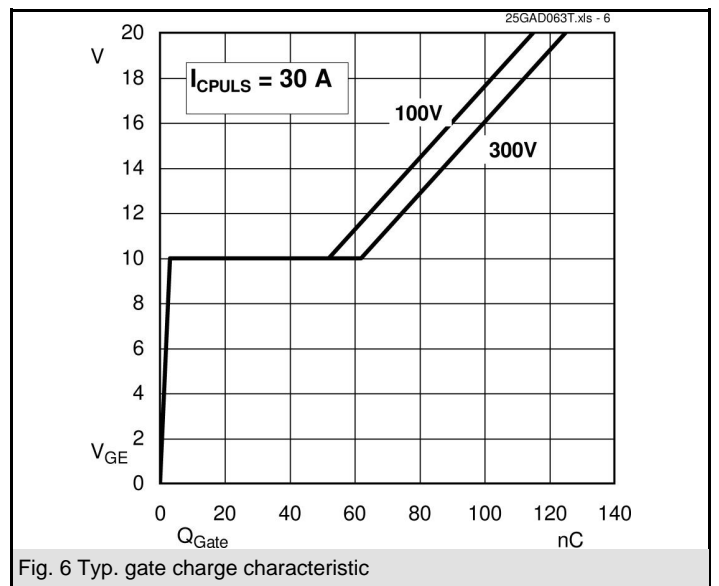
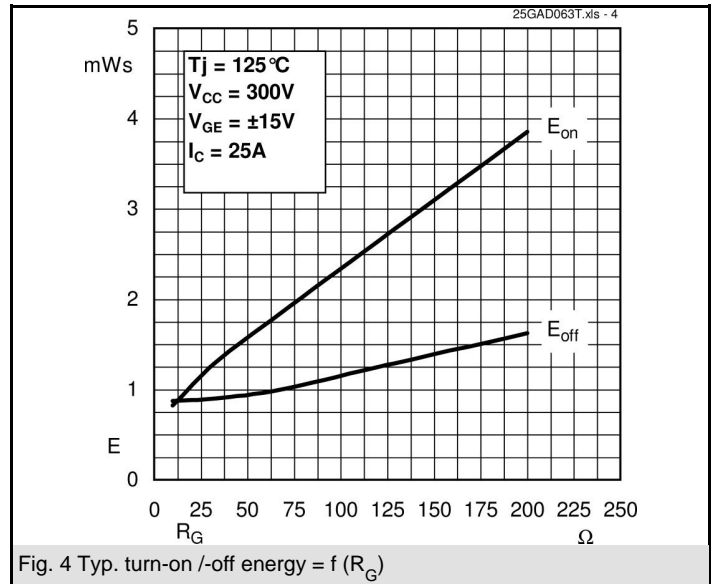
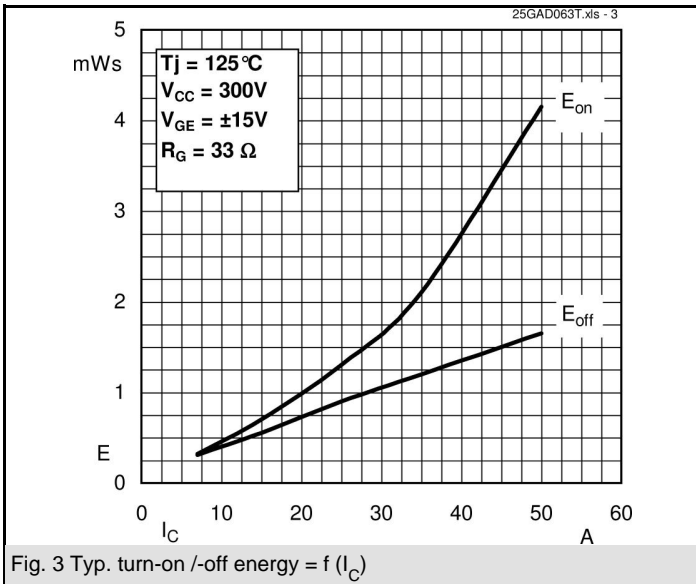
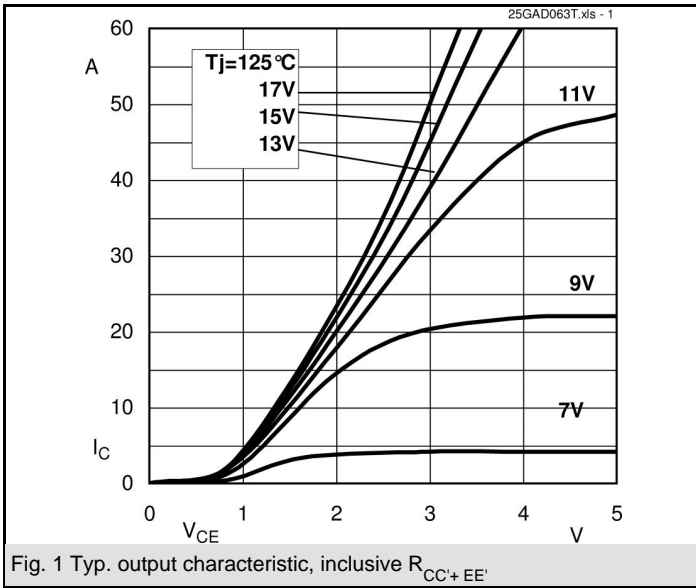


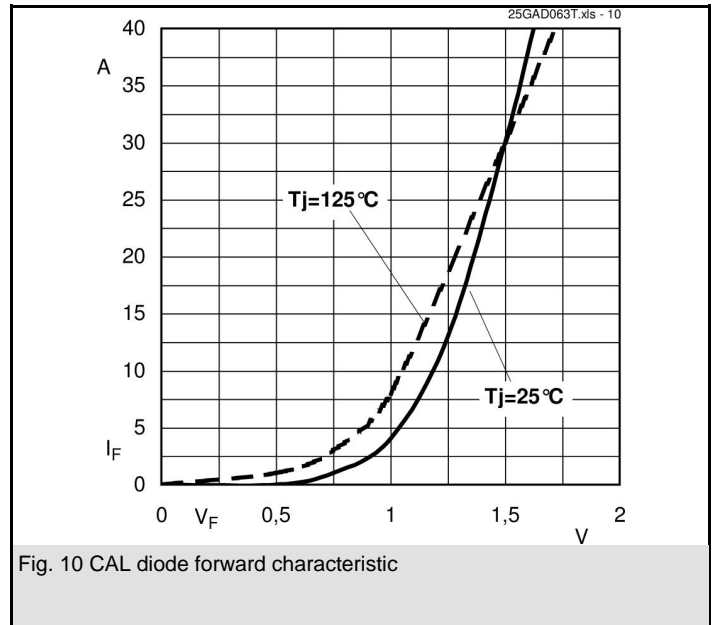
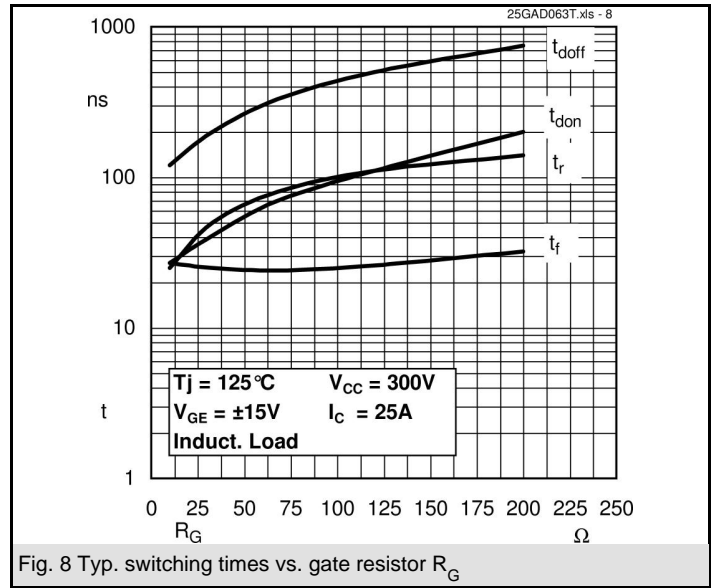
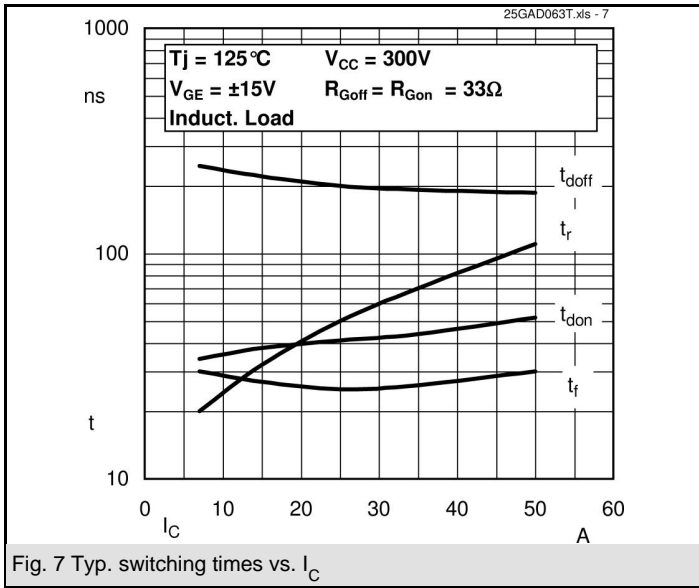
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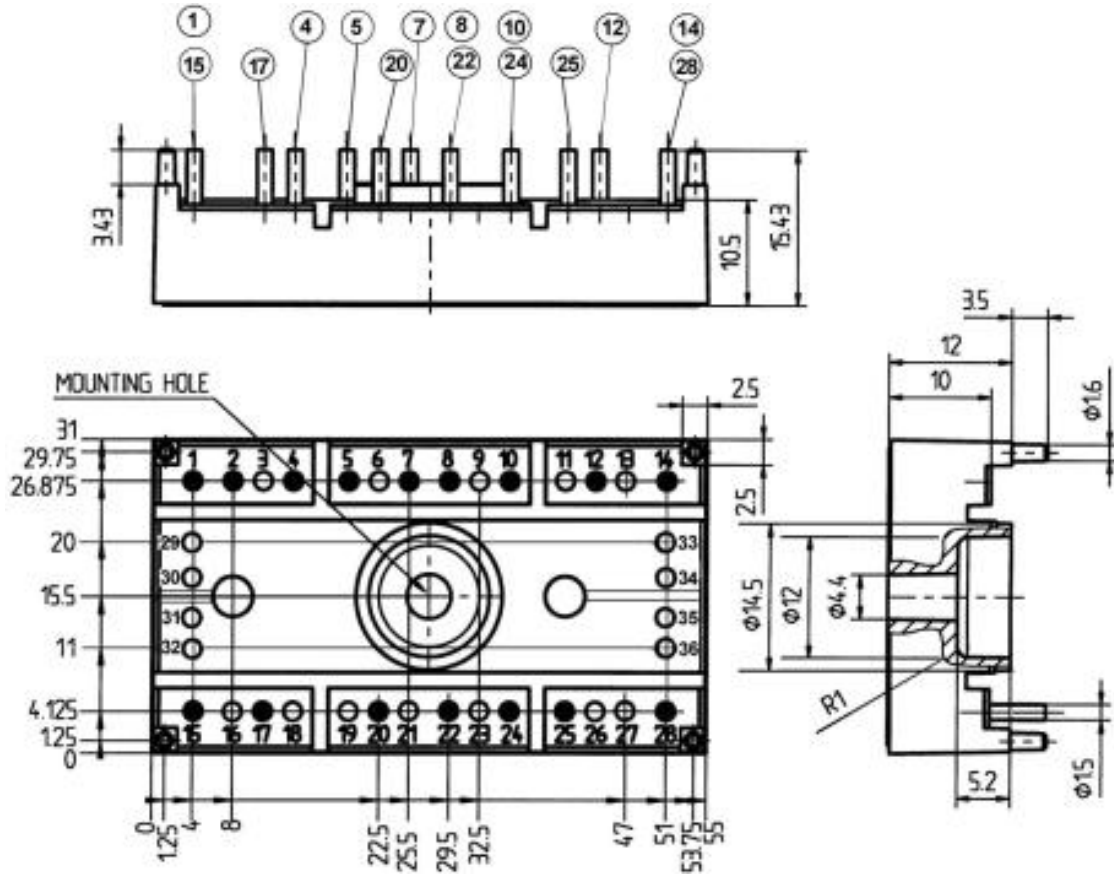
Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
$V_F = V_{EC}$	$I_{Fnom} = 10 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$	1,45	1,7	V
		$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$	1,4	1,7	V
V_{F0}			0,85	0,9	V
r_F			55	80	m Ω
I_{RRM}	$I_{Fnom} = 10 \text{ A}$		6,5		A
Q_{rr}	$di/dt = 200 \text{ A}/\mu\text{s}$		1		μC
E_{rr}	$V_{CC} = 300\text{V}$		0,1		mJ
$R_{th(j-s)D}$	per diode			2,3	K/W
Freewheeling Diode					
$V_F = V_{EC}$	$I_{Fnom} = 25 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$	1,45	1,7	V
		$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$	1,4	1,75	V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$			V
		$T_j = 125 \text{ }^\circ\text{C}$	0,85	0,9	V
r_F		$T_j = 25 \text{ }^\circ\text{C}$			V
		$T_j = 125 \text{ }^\circ\text{C}$	22	32	V
I_{RRM}	$I_{Fnom} = 25 \text{ A}$		16		A
Q_{rr}	$di/dt = -500 \text{ A}/\mu\text{s}$		2		μC
E_{rr}	$V_R = 300\text{V}$		0,25		mJ
$R_{th(j-s)FD}$	per diode			1,7	K/W
M_s	to heat sink M1	2,25		2,5	Nm
w			30		g
Temperature sensor					
R_{ts}	3%, $T_r = 25 (100)^\circ\text{C}$		1000 (1670)		Ω

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

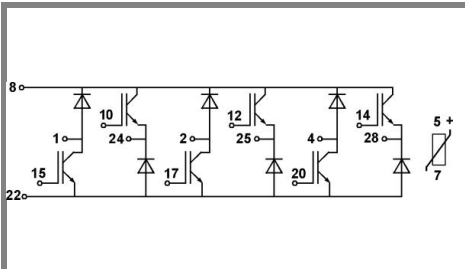
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Case T57 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 57

GAD