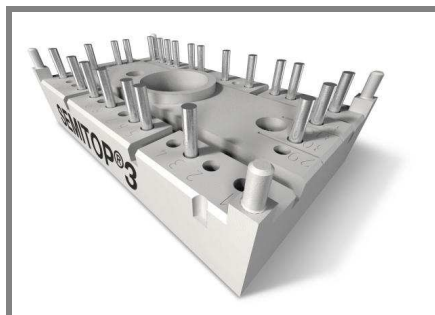


# SK10GD12T4ET



**SEMITOP<sup>®</sup> 3**

## IGBT Module

**SK10GD12T4ET**

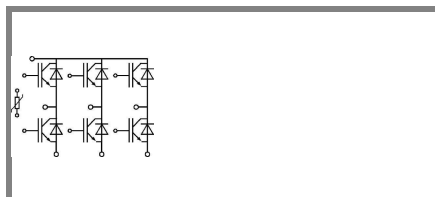
### Features

- One screw mounting module
- Trench4 IGBT technology
- CAL4 technology FWD
- Integrated NTC temperature sensor

### Typical Applications\*

### Remarks

- $V_{CE,sat}$ ,  $V_F$  = chip level value

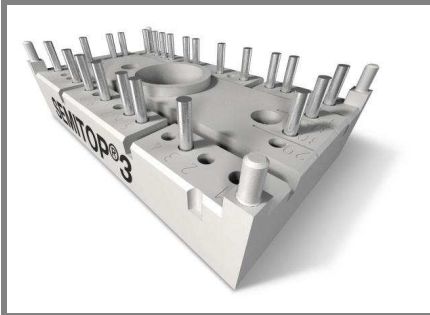


**GD-ET**

Absolute Maximum Ratings		$T_s = 25\text{ °C}$ , unless otherwise specified		
Symbol	Conditions	Values		Units
<b>IGBT</b>				
$V_{CES}$	$T_j = 25\text{ °C}$	1200		V
$I_C$	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	17	A
		$T_s = 70\text{ °C}$	15	A
$I_{CRM}$	$I_{CRM} = 3 \times I_{Cnom}$	24		A
$V_{GES}$		± 20		V
$t_{psc}$	$V_{CC} = 800\text{ V}$ ; $V_{GE} \leq 15\text{ V}$ ; $T_j = 150\text{ °C}$ $V_{CES} < 1200\text{ V}$	10		µs
<b>Inverse Diode</b>				
$I_F$	$T_j = 175\text{ °C}$	$T_s = 25\text{ °C}$	15	A
		$T_s = 70\text{ °C}$	12	A
$I_{FRM}$	$I_{FRM} = 3 \times I_{Fnom}$	24		A
<b>Module</b>				
$I_{t(RMS)}$				A
$T_{vj}$		-40 ... +175		°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	
<b>IGBT</b>						
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 0,3\text{ mA}$	5	5,8	6,5	V	
$I_{CES}$	$V_{GE} = 0\text{ V}$ , $V_{CE} = V_{CES}$	$T_j = 25\text{ °C}$			1,0	mA
		$T_j = 150\text{ °C}$				mA
$I_{GES}$	$V_{CE} = 0\text{ V}$ , $V_{GE} = 20\text{ V}$	$T_j = 25\text{ °C}$			120	nA
		$T_j = 150\text{ °C}$				nA
$V_{CE0}$		$T_j = 25\text{ °C}$	1,1	1,3	V	
		$T_j = 150\text{ °C}$	1	1,2	V	
$r_{CE}$	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	93,8		mΩ	
		$T_j = 150\text{ °C}$	156		mΩ	
$V_{CE(sat)}$	$I_{Cnom} = 8\text{ A}$ , $V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}_{chiplev.}$	1,85	2,05	V	
		$T_j = 150\text{ °C}_{chiplev.}$	2,25	2,45	V	
$C_{ies}$	$V_{CE} = 25$ , $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	0,49		nF	
$C_{oes}$			0,05		nF	
$C_{res}$			0,03		nF	
$Q_G$	$V_{GE} = -7V...+15V$	37,5		nC		
$t_{d(on)}$	$R_{Gon} = 32\ \Omega$ $di/dt = 1375\text{ A}/\mu\text{s}$	$V_{CC} = 600V$ $I_C = 8A$	16		ns	
$t_r$			14		ns	
$E_{on}$			0,41		mJ	
$t_{d(off)}$	$R_{Goff} = 32\ \Omega$ $di/dt = 1375\text{ A}/\mu\text{s}$	$T_j = 150\text{ °C}$ $V_{GE} = \pm 15\text{ V}$	273		ns	
$t_f$			85		ns	
$E_{off}$			0,76		mJ	
$R_{th(j-s)}$	per IGBT	2,2		K/W		

# SK10GD12T4ET



**SEMITOP<sup>®</sup> 3**

## IGBT Module

**SK10GD12T4ET**

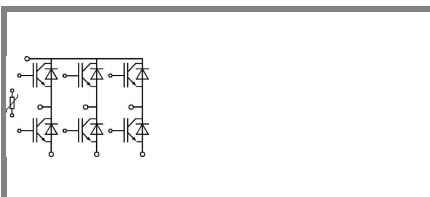
### Features

- One screw mounting module
- Trench4 IGBT technology
- CAL4 technology FWD
- Integrated NTC temperature sensor

### Typical Applications\*

### Remarks

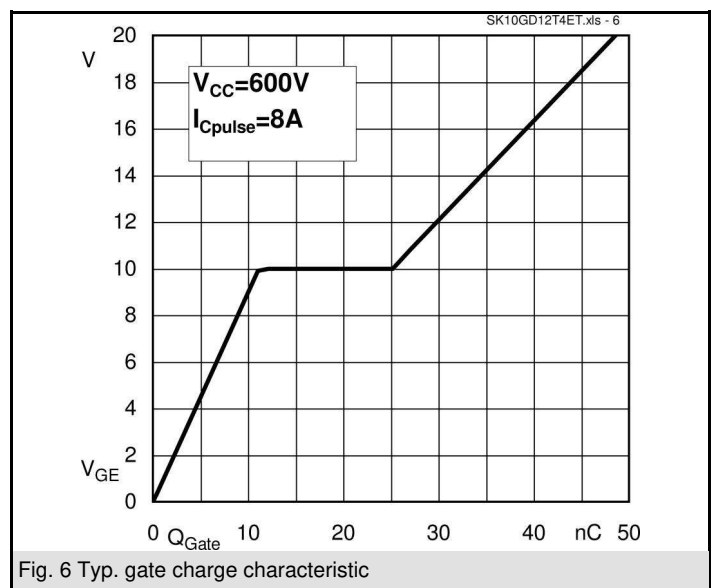
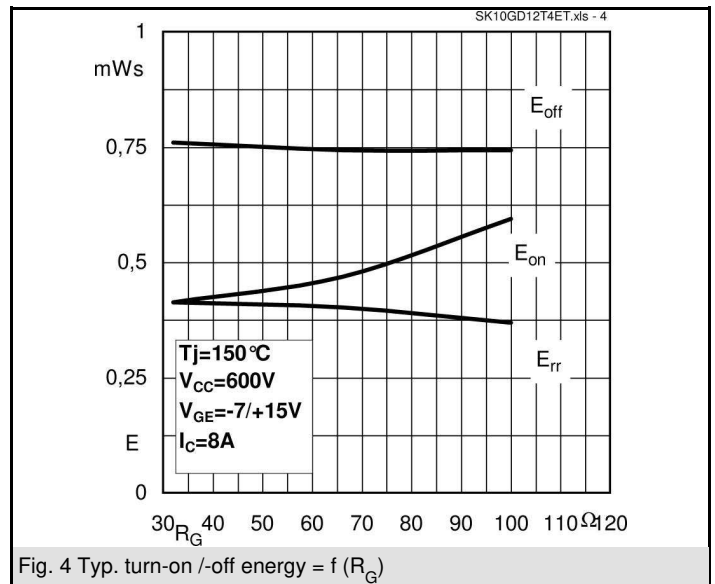
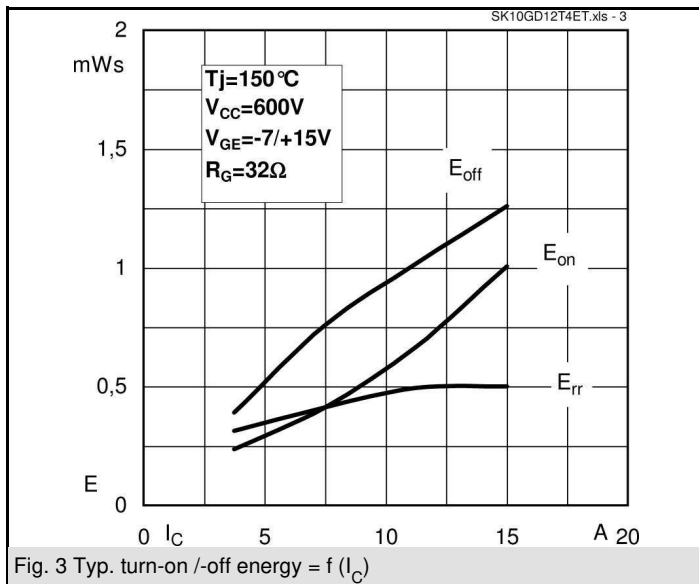
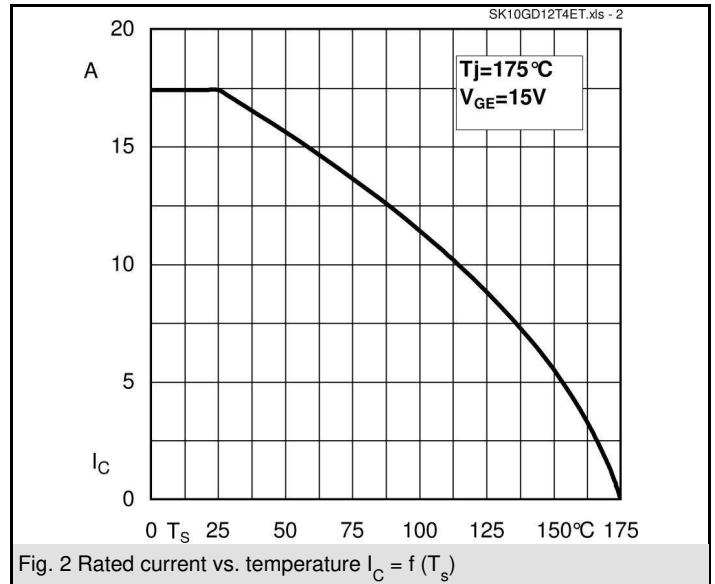
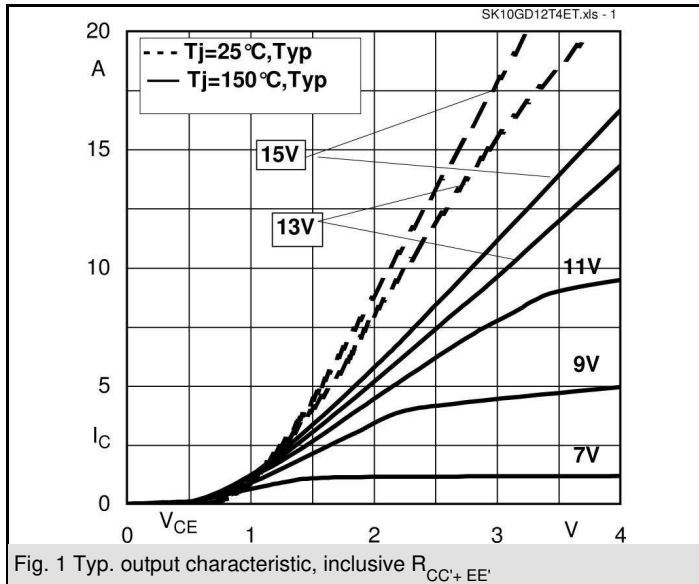
- $V_{CE,sat}$ ,  $V_F$  = chip level value

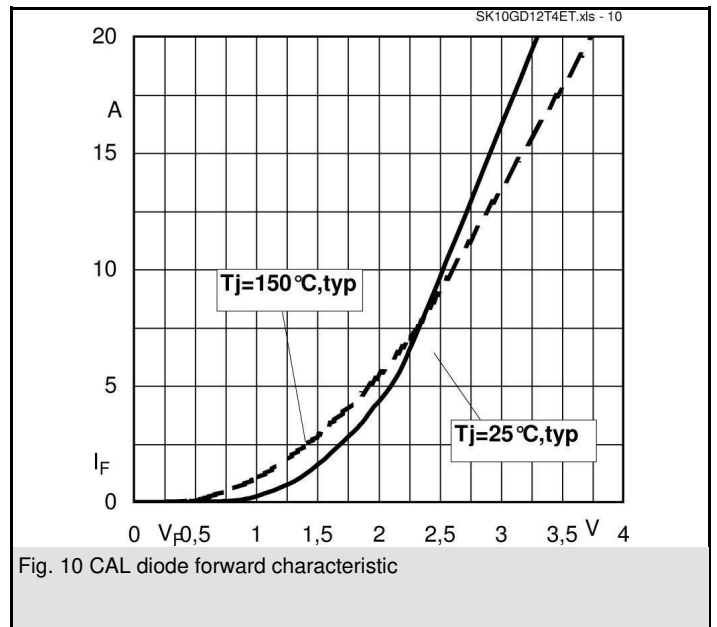
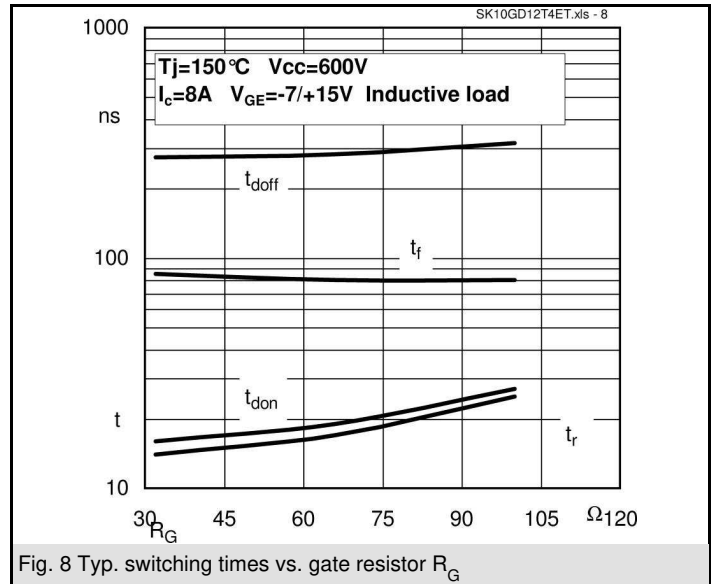
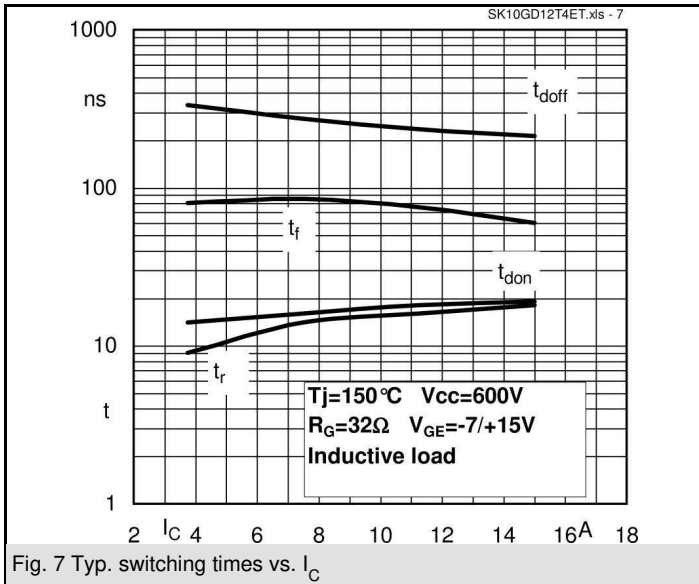


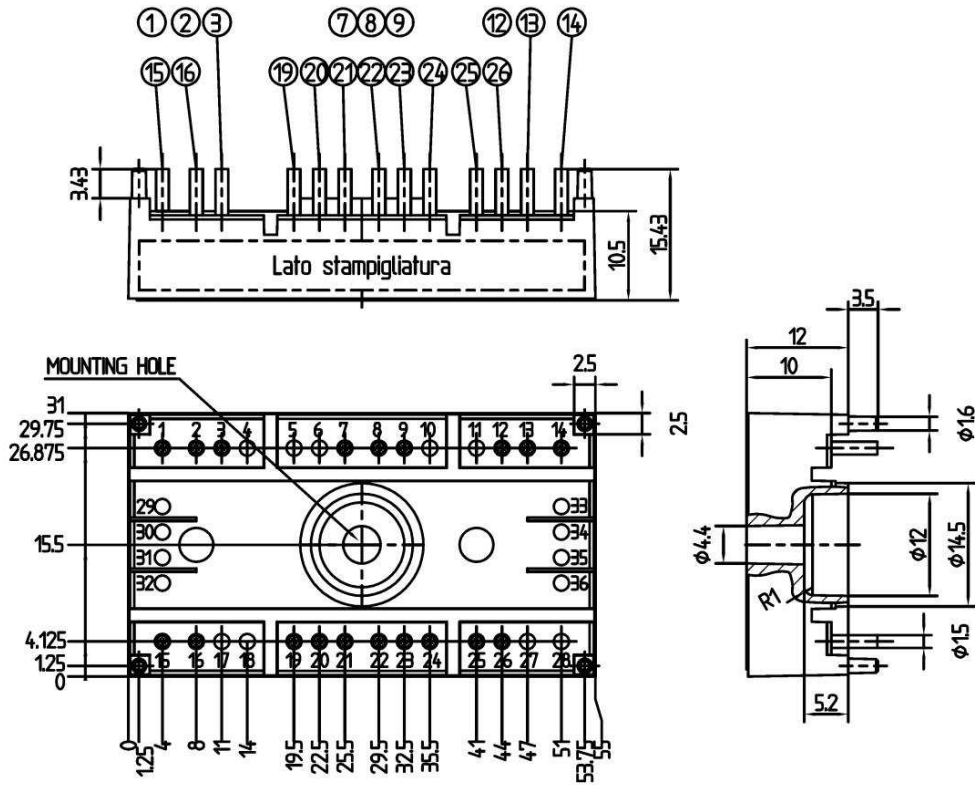
**GD-ET**

### Characteristics

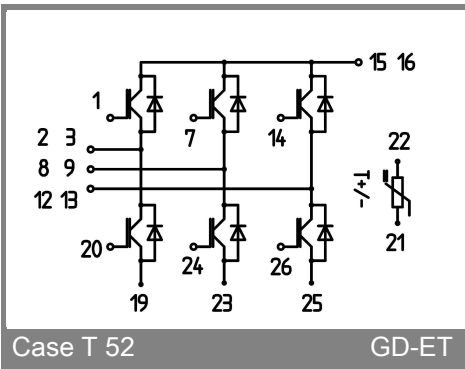
Symbol	Conditions	min.	typ.	max.	Units	
<b>Inverse Diode</b>						
$V_F = V_{EC}$	$I_{Fnom} = 8 \text{ A}; V_{GE} = 0 \text{ V}$		$T_j = 25 \text{ }^\circ\text{C}_{\text{chiplev.}}$	2,38	2,71	V
			$T_j = 150 \text{ }^\circ\text{C}_{\text{chiplev.}}$	2,44	2,77	V
$V_{F0}$			$T_j = 25 \text{ }^\circ\text{C}$	1,3	1,5	V
			$T_j = 150 \text{ }^\circ\text{C}$	0,9	1,1	V
$r_F$			$T_j = 25 \text{ }^\circ\text{C}$	135	151,3	m $\Omega$
			$T_j = 150 \text{ }^\circ\text{C}$	192	208,8	m $\Omega$
$I_{RRM}$	$I_F = 8 \text{ A}$	$T_j = 150 \text{ }^\circ\text{C}$		15	A	
$Q_{rr}$	$di/dt = 1375 \text{ A}/\mu\text{s}$			0,2	$\mu\text{C}$	
$E_{rr}$	$V_{CC} = 600\text{V}$			0,41	mJ	
$R_{th(j-s)D}$	per diode		2,7		K/W	
$M_s$	to heat sink	2,25		2,5	Nm	
w			30		g	
<b>Temperature sensor</b>						
$R_{100}$	$T_s = 100^\circ\text{C}$ ( $R_{25} = 5\text{k}\Omega$ )		493 $\pm$ 5%		$\Omega$	







Case T52 (Suggested hole diameter for solder pins and plastic mounting pins: 2mm)



Case T 52

GD-ET

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

### \*IMPORTANT INFORMATION AND WARNINGS

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