

SKM 75GB12T4



SEMITRANS® 2

IGBT4 Modules

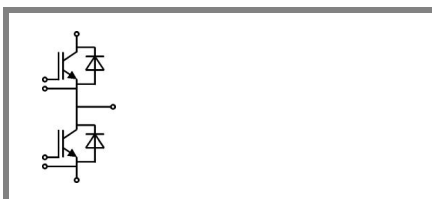
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Features

- IGBT4 = 4. Generation (Trench) IGBT
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting
- Soft switching 4. Generation CAL diode (CAL4)

Typical Applications

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



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Absolute Maximum Ratings		$T_c = 25\text{ }^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	Values		Units	
IGBT					
V_{CES}	$T_j = 25\text{ }^\circ\text{C}$	1200		V	
I_C	$T_j = 175\text{ }^\circ\text{C}$	$T_{case} = 25\text{ }^\circ\text{C}$	110		A
		$T_{case} = 80\text{ }^\circ\text{C}$	90		A
I_{CRM}	$I_{CRM} = 3 \times I_{CNOM}$	225		A	
V_{GES}		± 20		V	
t_{psc}	$V_{CC} = 800\text{ V}$; $V_{GE} \leq 15\text{ V}$; $T_j = 150\text{ }^\circ\text{C}$ $V_{CES} < 1200\text{ V}$	10		μs	
Inverse Diode					
I_F	$T_j = 175\text{ }^\circ\text{C}$	$T_{case} = 25\text{ }^\circ\text{C}$	95		A
		$T_{case} = 80\text{ }^\circ\text{C}$	75		A
I_{FRM}	$I_{FRM} = 3 \times I_{FNOM}$	225		A	
I_{FSM}	$t_p = 10\text{ ms}$; sin.	$T_j = 175\text{ }^\circ\text{C}$	430		A
Module					
$I_{t(RMS)}$		200		A	
T_{vj}		-40 ... +175		$^\circ\text{C}$	
T_{stg}		-40 ... +125		$^\circ\text{C}$	
V_{isol}	AC, 1 min.	4000		V	

Characteristics		$T_c = 25\text{ }^\circ\text{C}$, unless otherwise specified				
Symbol	Conditions	min.	typ.	max.	Units	
IGBT						
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 3\text{ mA}$	5	5,8	6,5	V	
I_{CES}	$V_{GE} = V$, $V_{CE} = V_{CES}$				$T_j = \text{ }^\circ\text{C}$ mA	
V_{CE0}		$T_j = 25\text{ }^\circ\text{C}$	0,8		0,9	V
		$T_j = 150\text{ }^\circ\text{C}$	0,7		0,8	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ }^\circ\text{C}$	14		15,3	$\text{m}\Omega$
		$T_j = 150\text{ }^\circ\text{C}$	20,7		22	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 75\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25\text{ }^\circ\text{C}_{chiplev.}$	1,85		2,05	V
		$T_j = 150\text{ }^\circ\text{C}_{chiplev.}$	2,25		2,45	V
C_{res}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	4,4		nF	
C_{oes}			0,29		nF	
C_{res}			0,24		nF	
Q_G	$V_{GE} = -8\text{V}/15\text{V}$		425		nC	
R_{Gint}	$T_j = 25\text{ }^\circ\text{C}$		10		Ω	
$t_{d(on)}$	$R_{Gon} = 1\text{ }\Omega$ $di/dt = 1600\text{ A}/\mu\text{s}$	$V_{CC} = 600\text{V}$ $I_C = 75\text{A}$ $T_j = 150\text{ }^\circ\text{C}$	150		ns	
t_r			39		ns	
E_{on}			11		mJ	
$t_{d(off)}$	$R_{Goff} = 1\text{ }\Omega$ $di/dt = 950\text{ A}/\mu\text{s}$		370		ns	
t_f			66		ns	
E_{off}			6,9		mJ	
$R_{th(j-c)}$	per IGBT		0,38		K/W	



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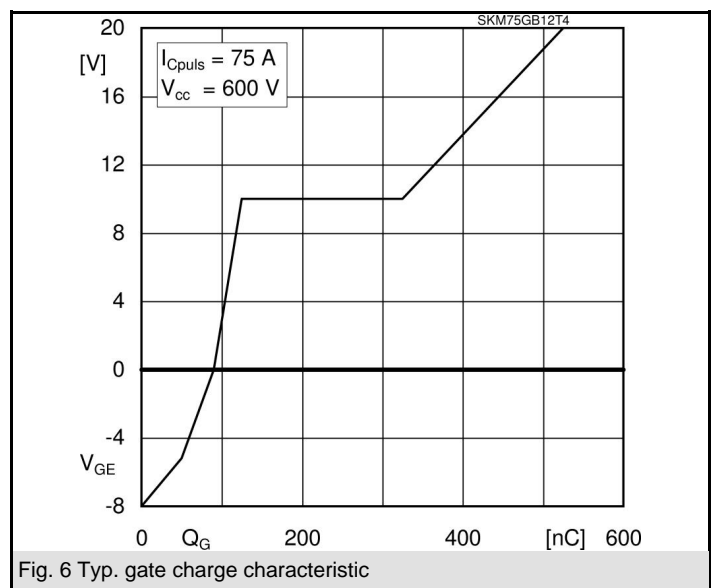
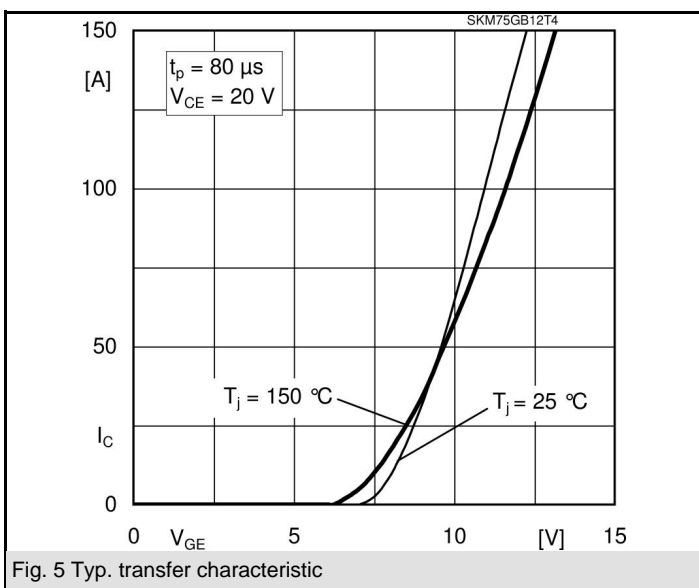
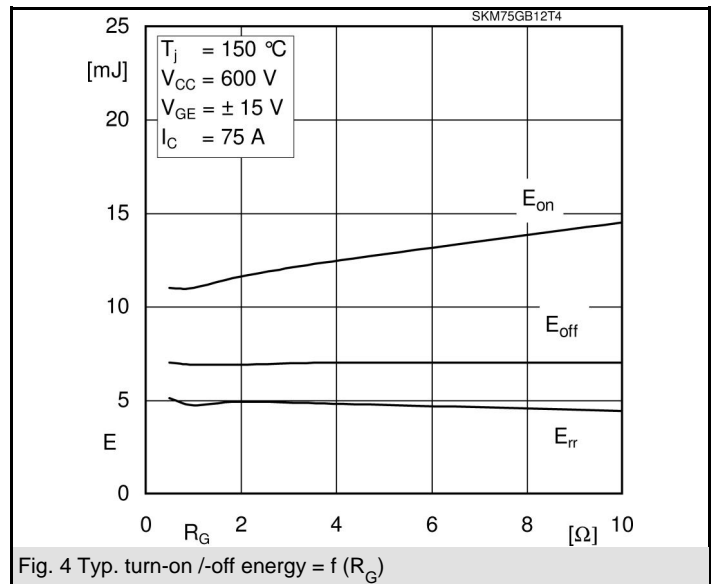
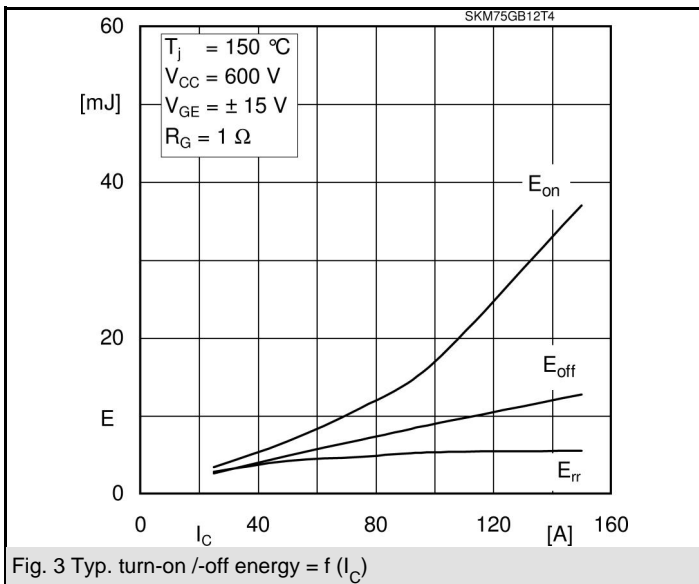
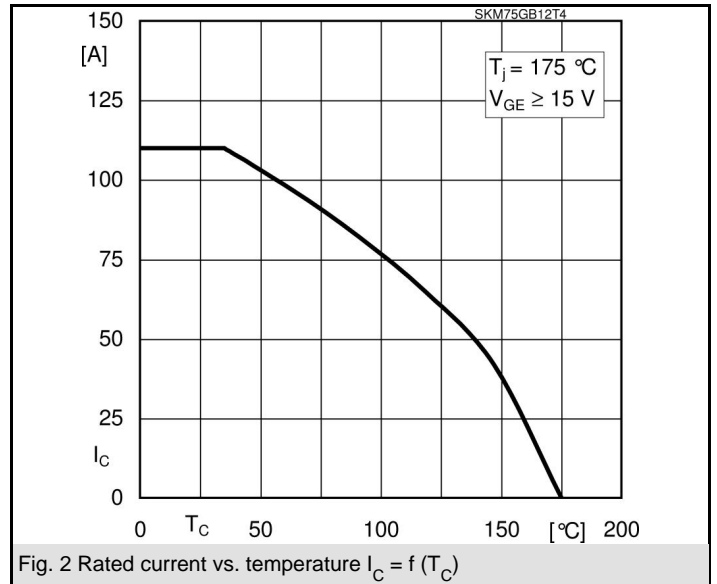
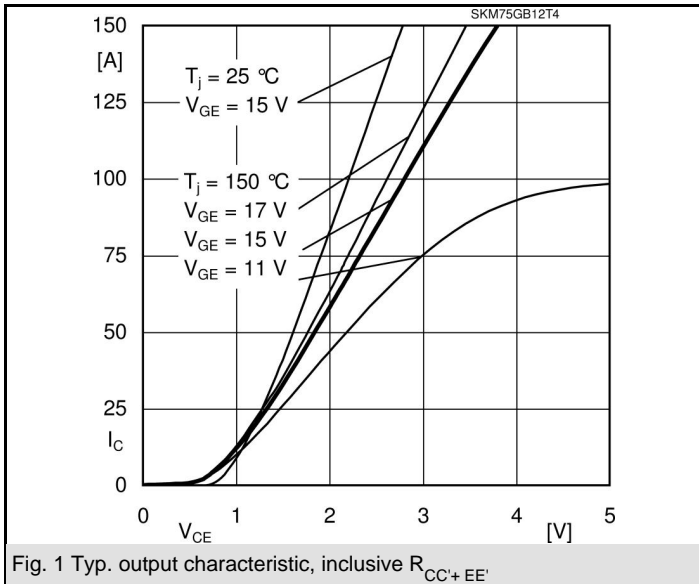


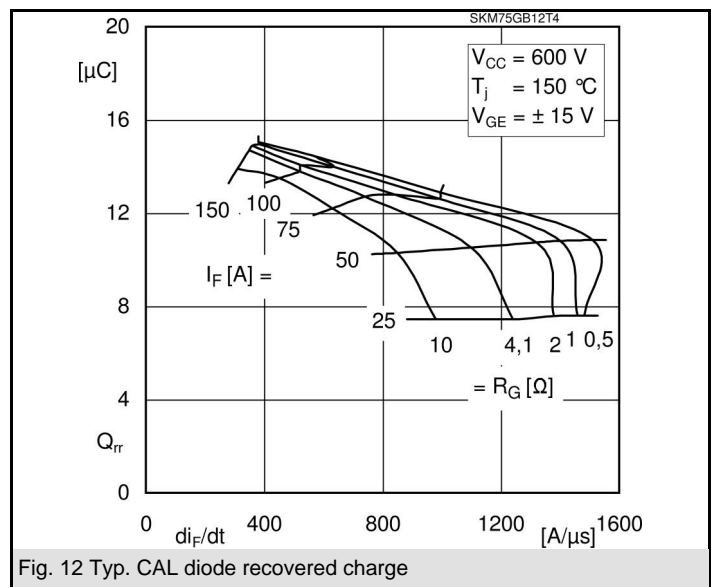
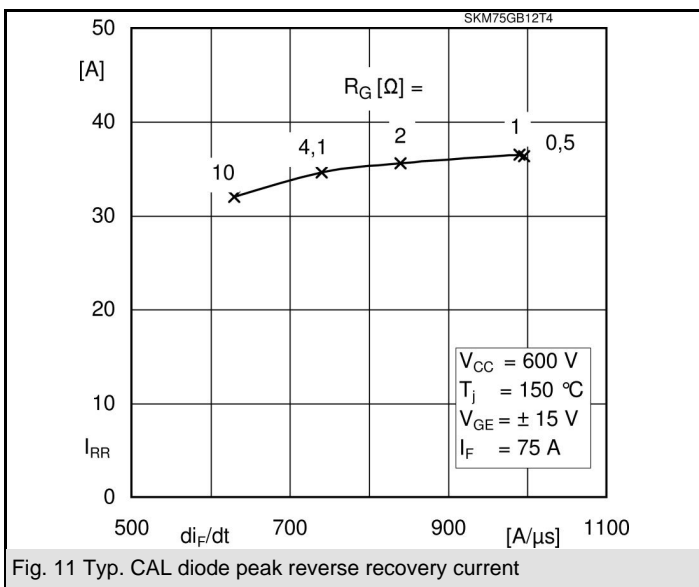
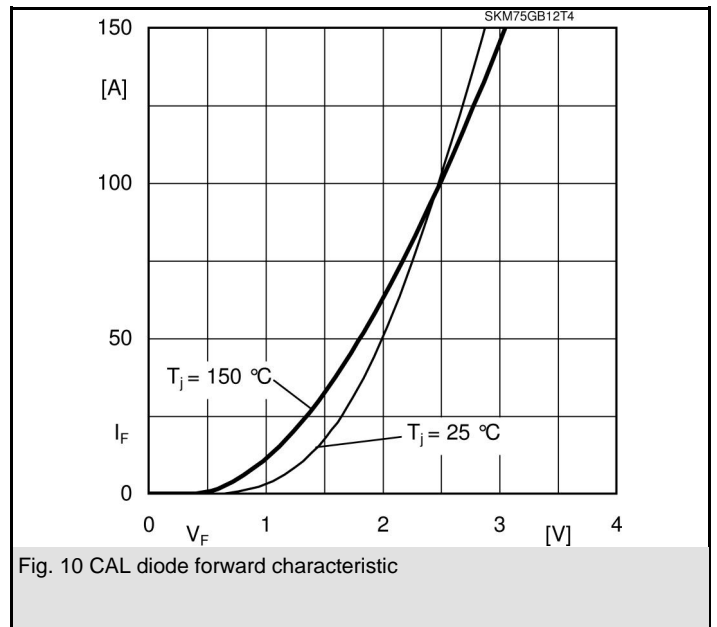
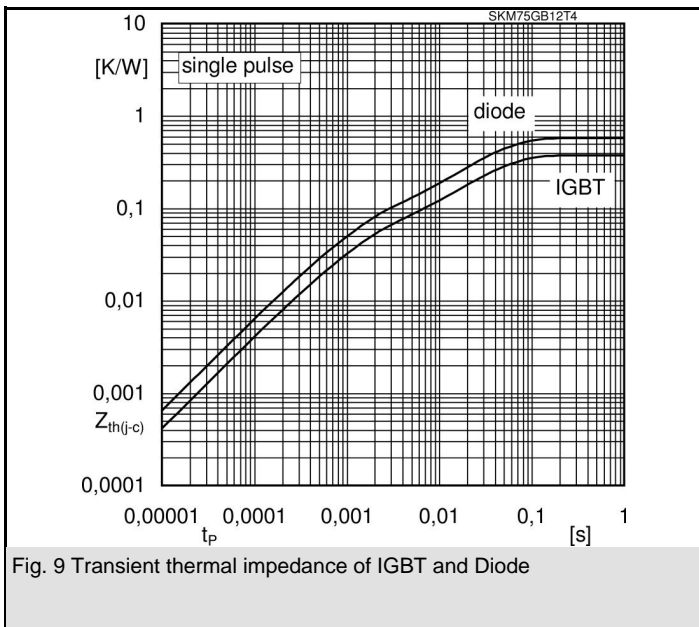
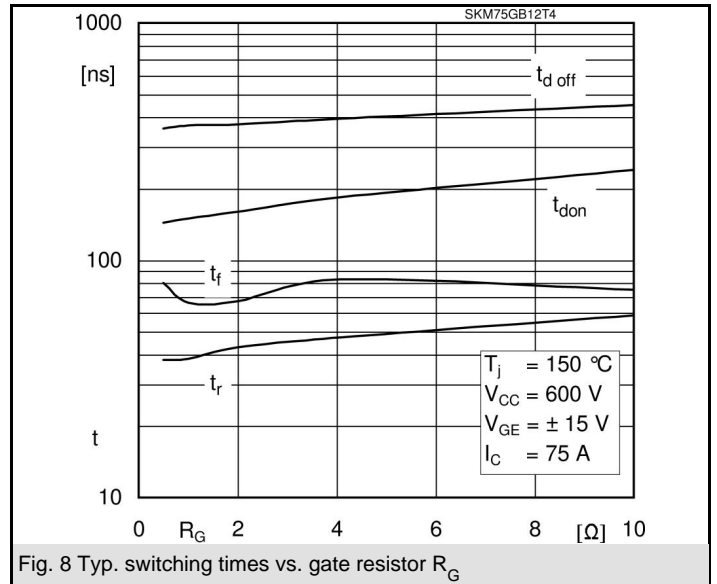
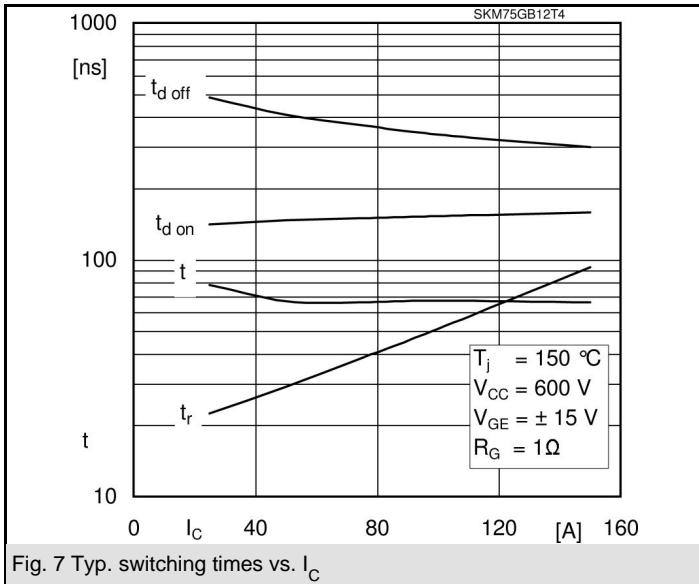
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Characteristics			min.	typ.	max.	Units
Symbol	Conditions					
Inverse Diode						
$V_F = V_{EC}$	$I_{Fnom} = 75\text{ A}; V_{GE} = 0\text{ V}$	$T_j = 25\text{ }^\circ\text{C}_{chiplev.}$		2,2	2,5	V
		$T_j = 150\text{ }^\circ\text{C}_{chiplev.}$		2,1	2,45	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		$T_j = 25\text{ }^\circ\text{C}$		12	13,3	mΩ
		$T_j = 150\text{ }^\circ\text{C}$		16	18	mΩ
I_{RRM}	$I_F = 75\text{ A}$	$T_j = 150\text{ }^\circ\text{C}$		37		A
Q_{rr}	$di/dt = 990\text{ A}/\mu\text{s}$			12,6		μC
E_{rr}				4,7		mJ
$R_{th(j-c)}$	per diode				0,58	K/W
Freewheeling Diode						
$V_F = V_{EC}$	$I_{Fnom} = \text{A}; V_{GE} = \text{V}$	$T_j = \text{ }^\circ\text{C}_{chiplev.}$				V
V_{F0}		$T_j = \text{ }^\circ\text{C}$				V
r_F		$T_j = \text{ }^\circ\text{C}$				V
I_{RRM}	$I_F = \text{A}$	$T_j = \text{ }^\circ\text{C}$				A
Q_{rr}						μC
E_{rr}						mJ
	per diode					K/W
Module						
L_{CE}				20	30	nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25\text{ }^\circ\text{C}$			0,75	mΩ
		$T_{case} = 125\text{ }^\circ\text{C}$			1	mΩ
$R_{th(c-s)}$	per module				0,05	K/W
M_s	to heat sink M6		3		5	Nm
M_t	to terminals M5		2,5		5	Nm
w					160	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.



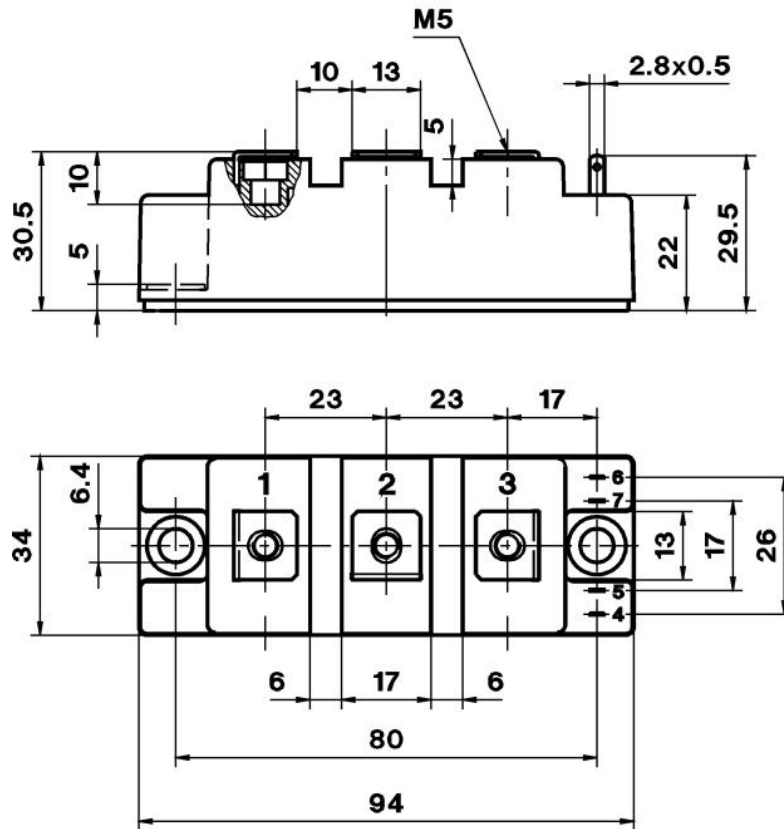


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UL recognized file

CASED61

no. E 63 532



Case D61

