

SKM 145GB123D



SEMITRANS™ 2

IGBT Modules

SKM 145GB123D

SKM 145GAL123D

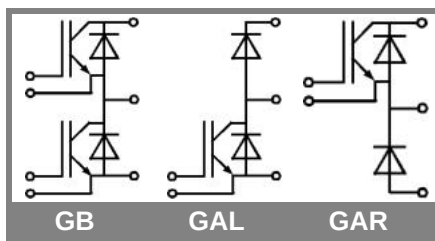
SKM 145GAR123D

Features

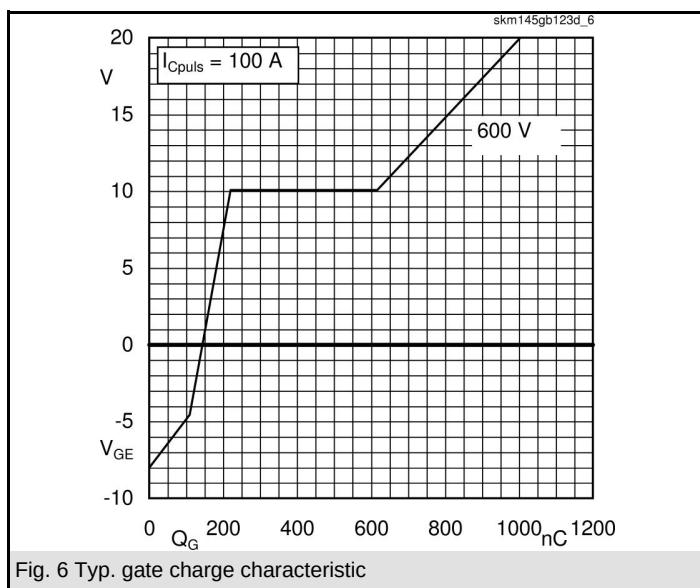
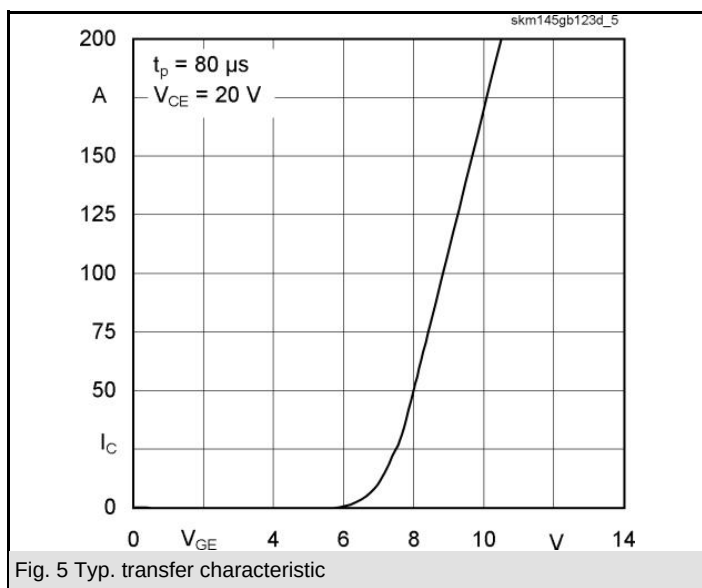
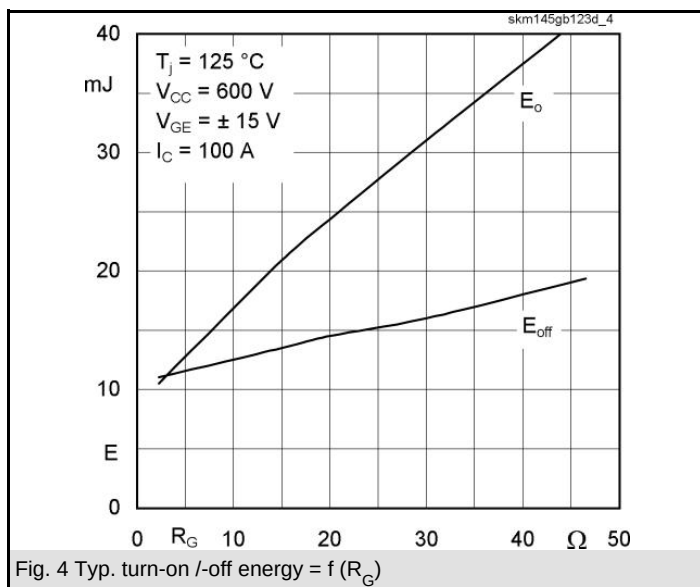
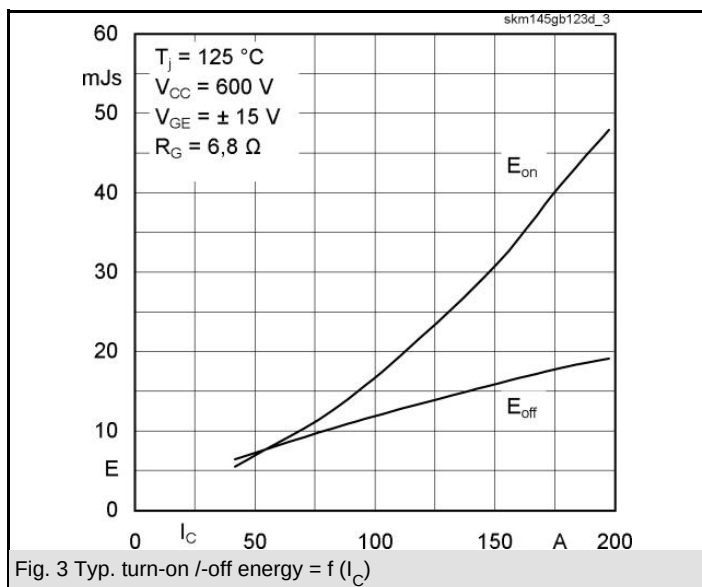
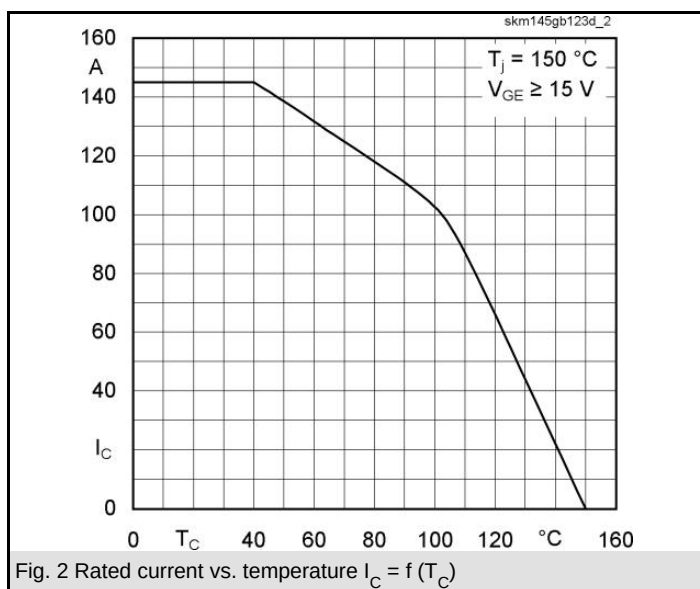
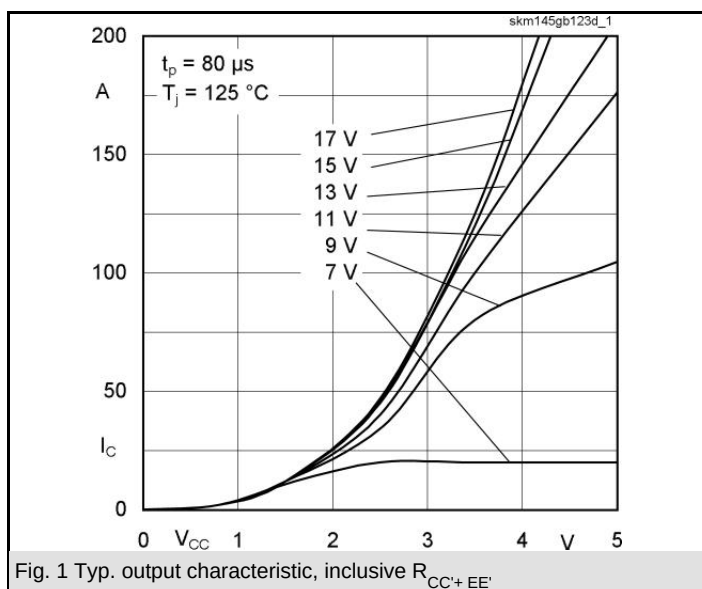
- MOS input (voltage controlled)
- N channel, Homogeneous Si
- Low inductance case
- Very low tail current with low temperature dependence
- High short circuit capability, self limiting to $6 \times I_{Cnom}$
- Latch-up free
- Fast & soft inverse CAL diodes
- Isolated copper baseplate using DCB Direct Copper Bonding
- Large clearance (10 mm) and creepage distances (20 mm)

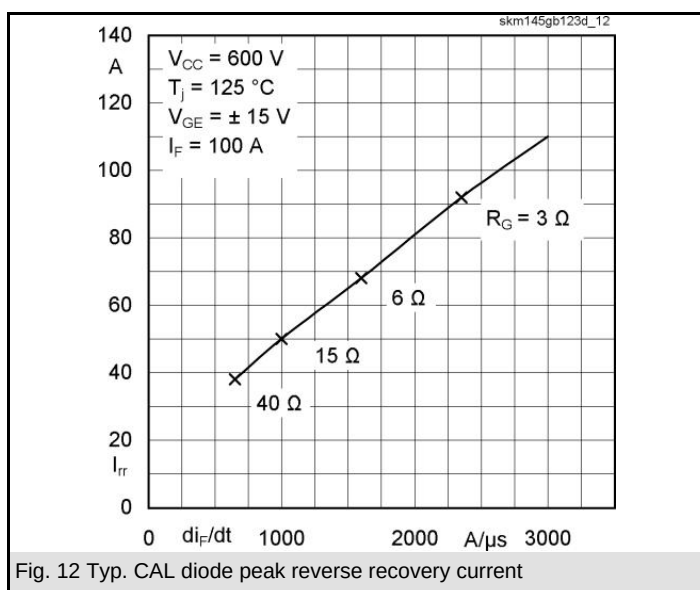
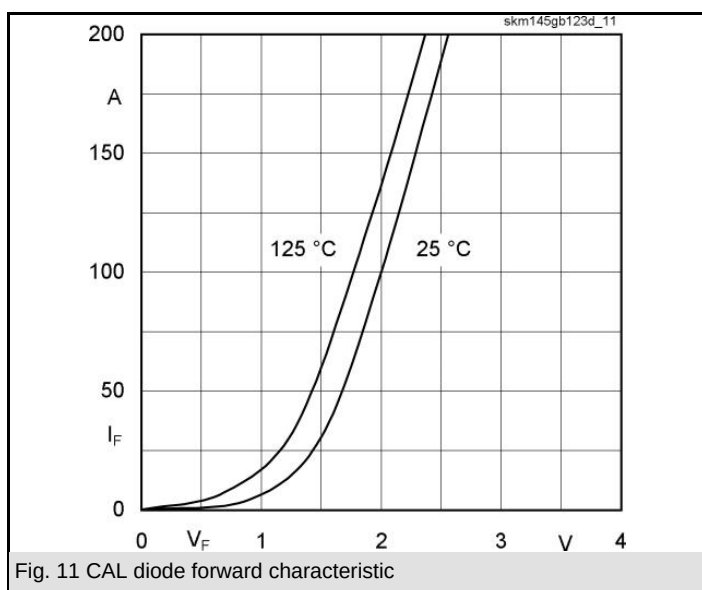
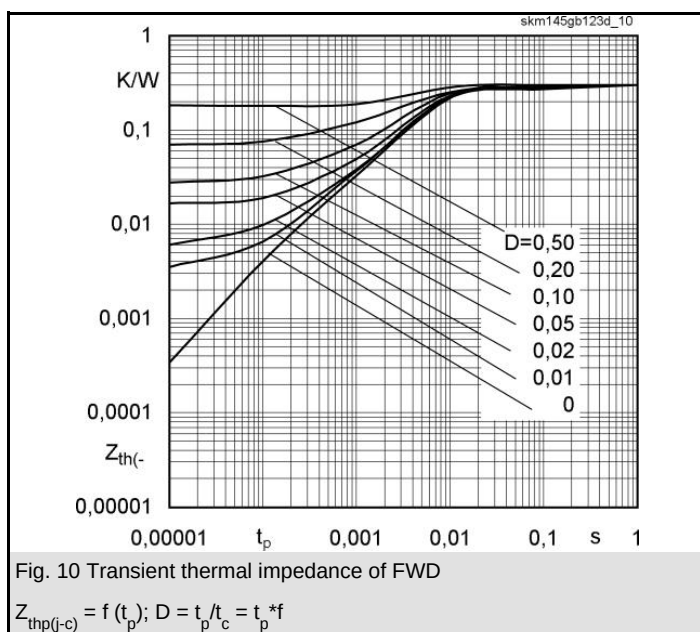
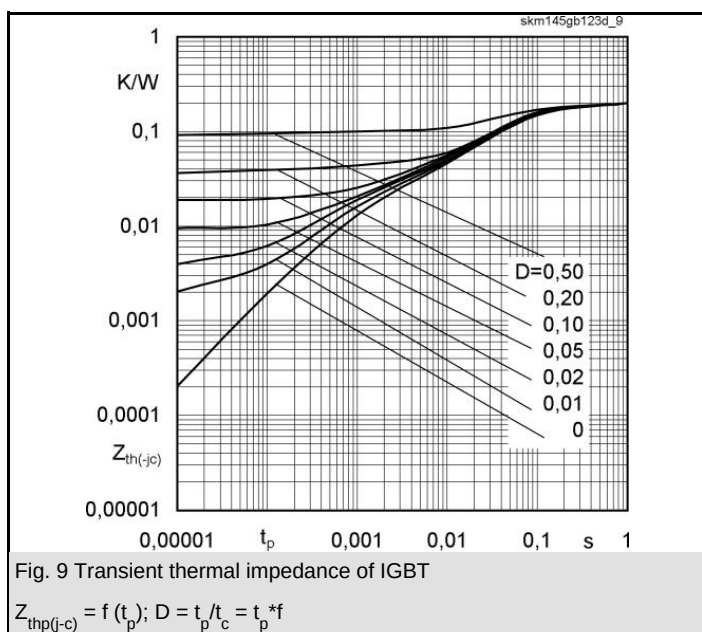
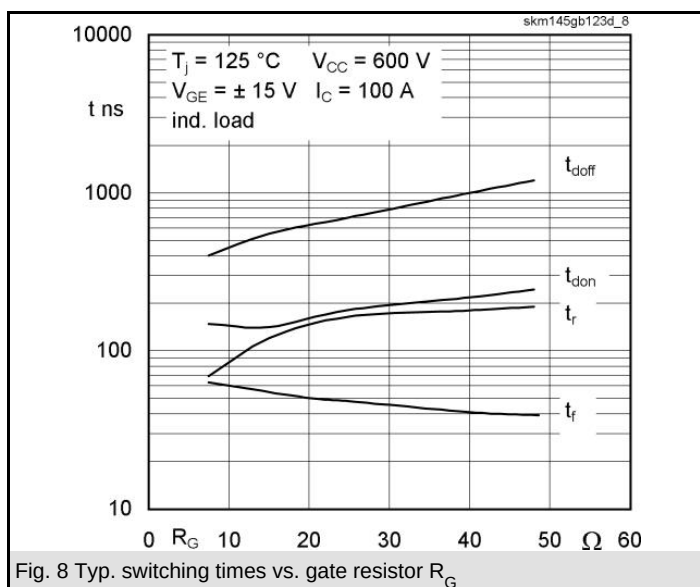
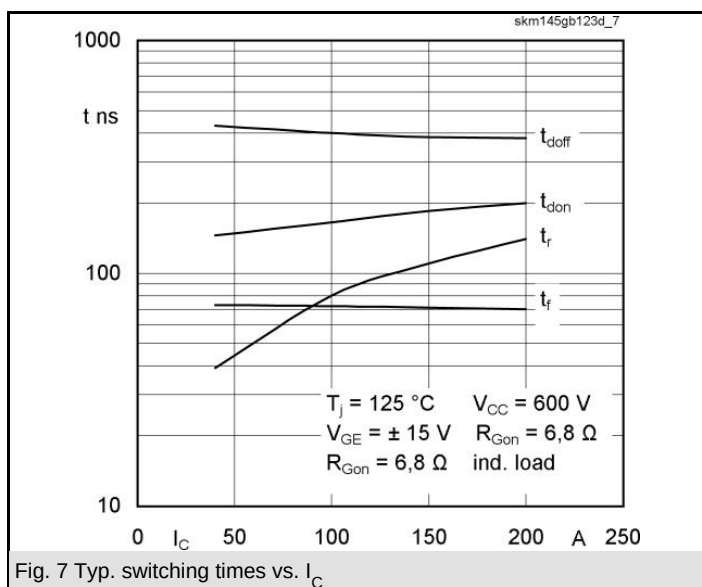
Typical Applications

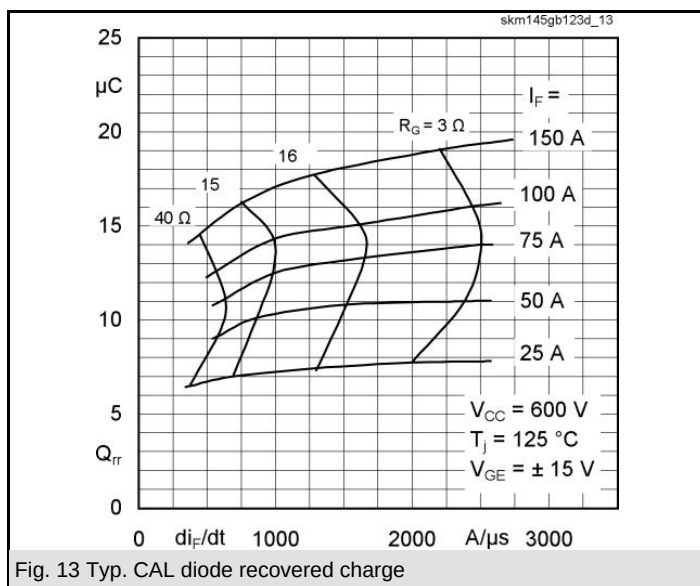
- Switching (not for linear use)



Absolute Maximum Ratings		T _c = 25 °C, unless otherwise specified			
Symbol	Conditions	Values		Units	
IGBT					
V _{CES}	T _c = 25 (80) °C	1200		V	
I _C		145 (110)		A	
I _{CRM}		200		A	
V _{GES}		± 20		V	
T _{vj} , (T _{stg})	T _{OPERATION} ≤ T _{stg}	- 40 ... + 150 (125)		°C	
V _{isol}	AC, 1 min.	2500		V	
Inverse diode					
I _F	T _c = 25 (80) °C	130 (90)		A	
I _{FRM}	t _p = 1 ms	200		A	
I _{FSM}	t _p = 10 ms; sin.; T _j = 150 °C	1100		A	
Freewheeling diode					
I _F	T _c = 25 (80) °C	170 (115)		A	
I _{FRM}	t _p = 1 ms	300		A	
I _{FSM}	t _p = 10 ms; sin.; T _j = 150 °C	1450		A	
Characteristics		T _c = 25 °C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 4 mA	4,5	5,5	6,5	V
I _{CES}	V _{GE} = 0, V _{CE} = V _{CES} , T _j = 25 (125) °C		0,1	0,3	mA
V _{CE(TO)}	T _j = 25 (125) °C		1,4 (1,6)	1,6 (1,8)	V
r _{CE}	V _{GE} = 15 V, T _j = 25 (125) °C		11 (15)	14 (19)	mΩ
V _{CE(sat)}	I _{Cnom} = 100 A, V _{GE} = 15 V, chip level		2,5 (3,1)	3 (3,7)	V
C _{ies}	under following conditions		6,5	8,5	nF
C _{oes}	V _{GE} = 0, V _{CE} = 25 V, f = 1 MHz		1	1,5	nF
C _{res}			0,5	0,6	nF
L _{CE}				30	nH
R _{CC'+EE'}	res., terminal-chip T _c = 25 (125) °C		0,75 (1)		mΩ
t _{d(on)}	V _{CC} = 600 V, I _{Cnom} = 100 A		160	320	ns
t _r	R _{Gon} = R _{Goff} = 6,8 Ω, T _j = 125 °C		80	160	ns
t _{d(off)}	V _{GE} = ± 15 V		400	520	ns
t _f			70	100	ns
E _{on} (E _{off})			16 (12)		mJ
Inverse diode					
V _F = V _{EC}	I _{Fnom} = 100 A; V _{GE} = 0 V; T _j = 25 (125)		2 (1,8)	2,5	V
V _(TO)	T _j = 125 () °C			1,2	V
r _T	T _j = 125 () °C		8	11	mΩ
I _{RRM}	I _{Fnom} = 100 A; T _j = 25 (125) °C		35 (50)		A
Q _{rr}	di/dt = 1000 A/μs		5 (14)		μC
E _{rr}	V _{GE} = V				mJ
FWD					
V _F = V _{EC}	I _F = 150 A; V _{GE} = 0 V, T _j = 25 (125) °C		2 (1,8)	2,5	V
V _(TO)	T _j = 125 () °C			1,2	V
r _T	T _j = 125 () °C			7	mΩ
I _{RRM}	I _F = 150 A; T _j = 25 (125) °C		55 (80)		A
Q _{rr}	di/dt = A/μs		8 (23)		μC
E _{rr}	V _{GE} = V				mJ
Thermal characteristics					
R _{th(j-c)}	per IGBT			0,15	K/W
R _{th(j-c)D}	per Inverse Diode			0,36	K/W
R _{th(j-c)FD}	per FWD			0,3	K/W
R _{th(c-s)}	per module			0,05	K/W
Mechanical data					
M _s	to heatsink M6	3		5	Nm
M _t	to terminals M5	2,5		5	Nm
w				160	g



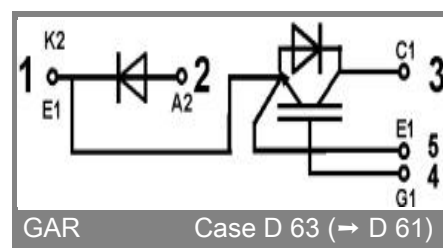
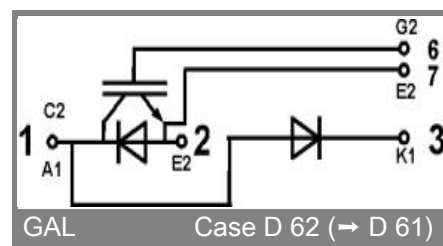
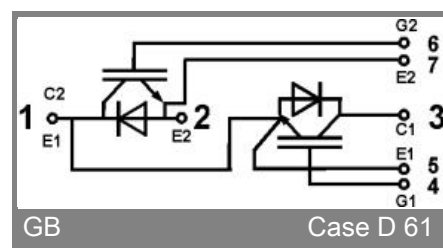
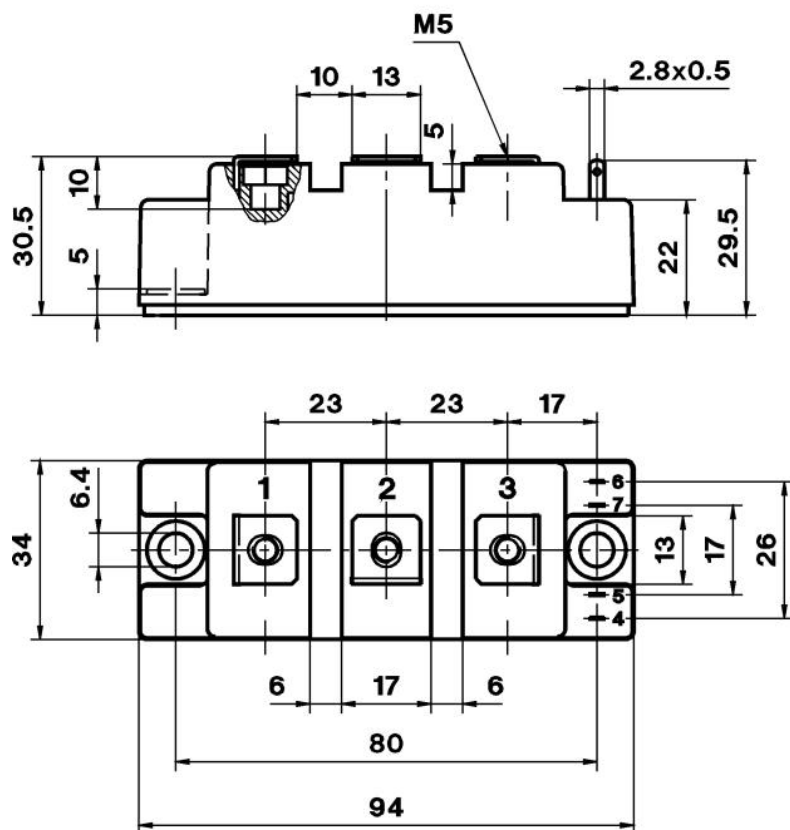




UL Recognized
File no. E 63 532

Dimensions in mm

CASED61



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

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