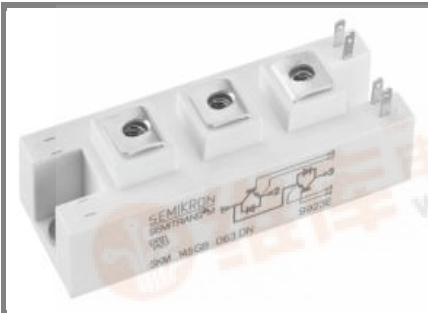


SKM 195GB126DN



SEMITRANS™ 2N

Trench IGBT Module

SKM 195GB126DN

SKM 195GAL126DN

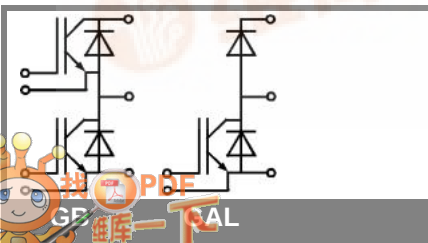
Preliminary Data

Features

- Homogeneous Si
- Trench = Trenchgate technology
- V_{CEsat} with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications

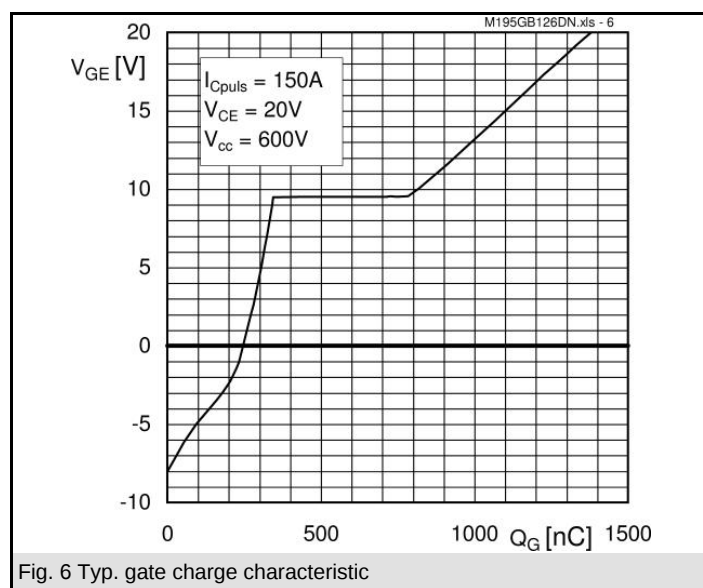
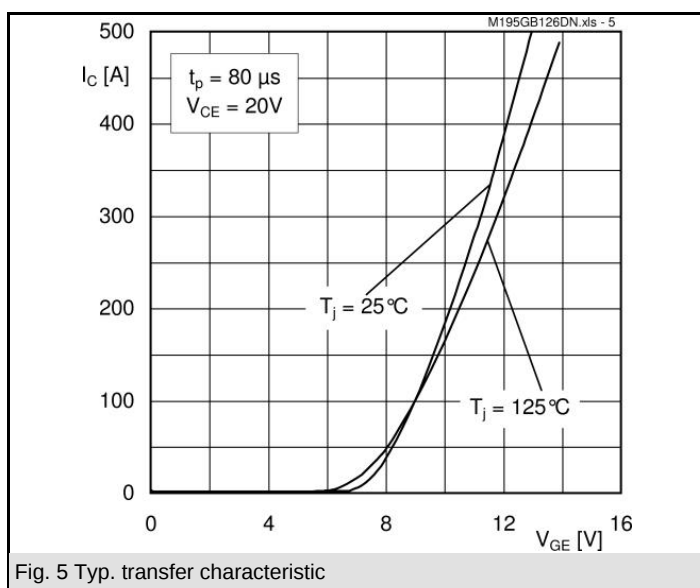
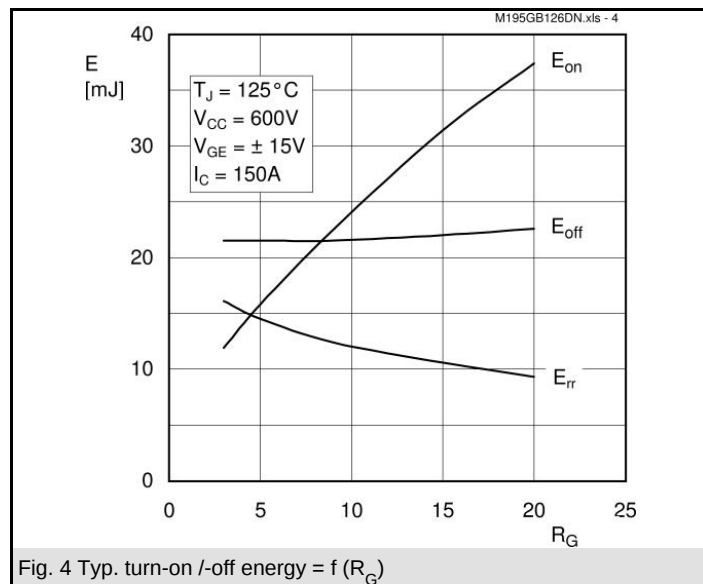
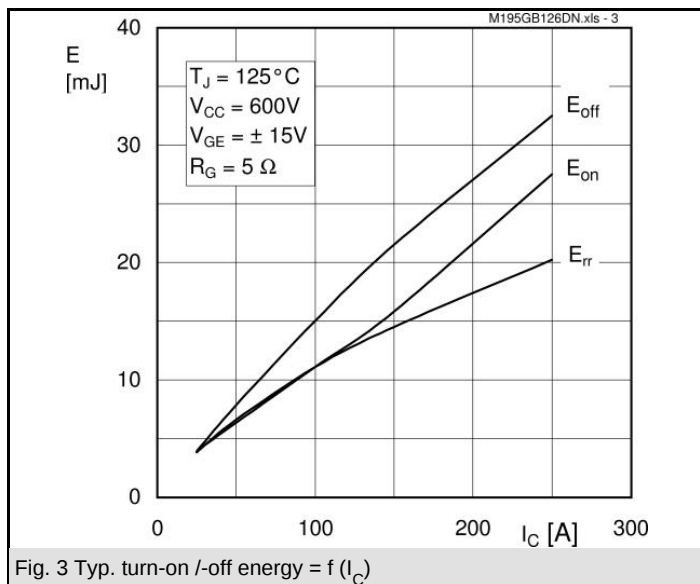
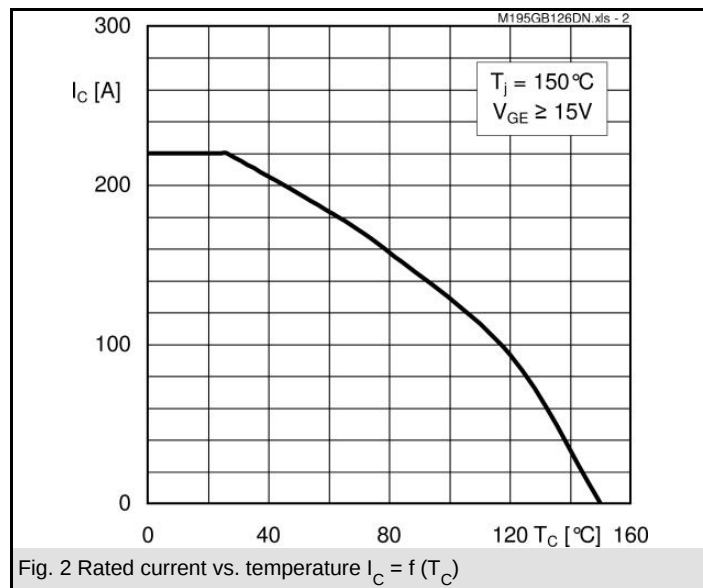
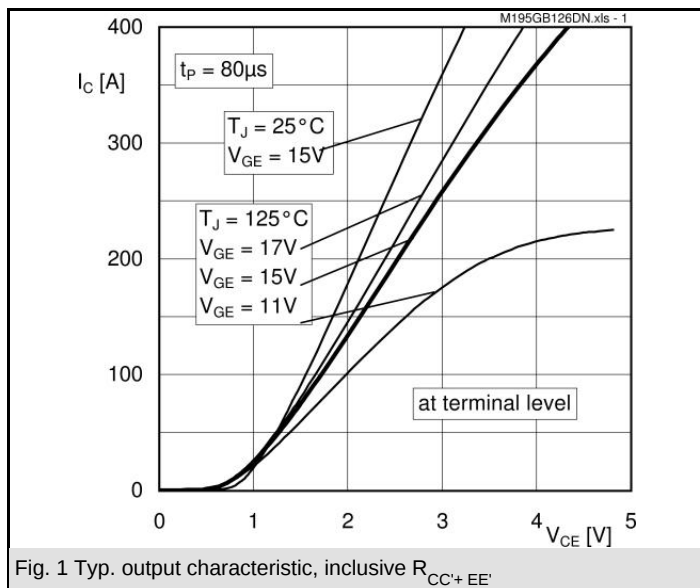
- AC inverter drives
- UPS
- Electronic welders



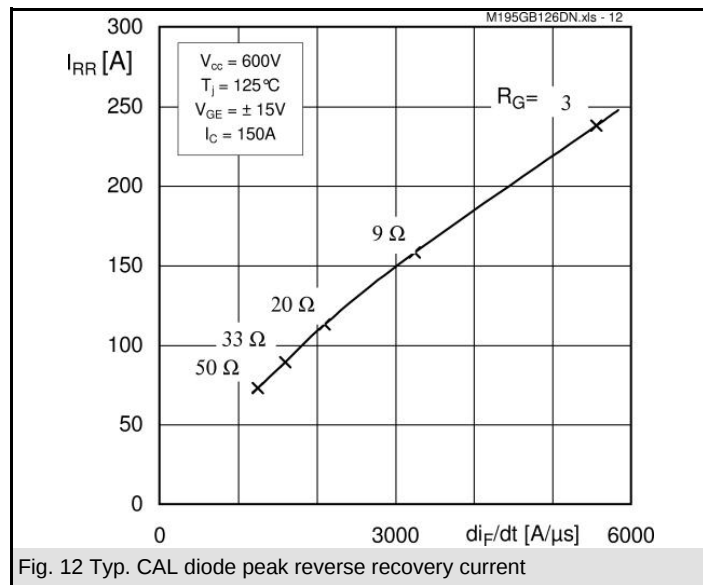
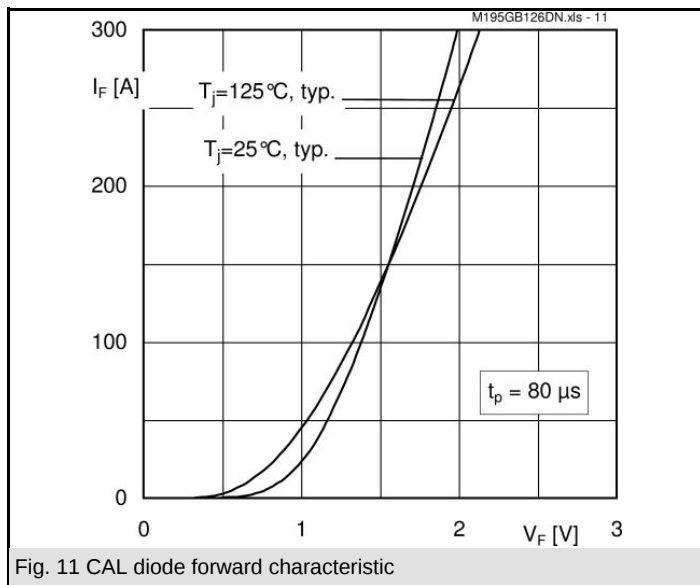
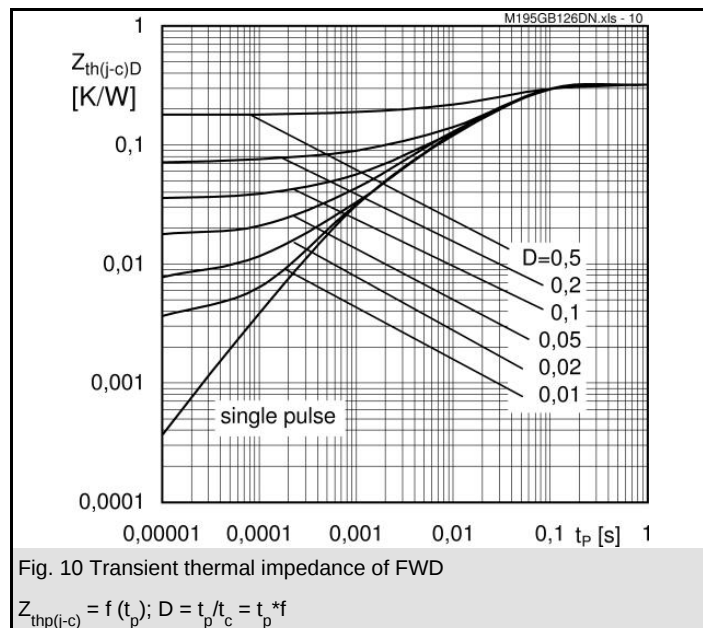
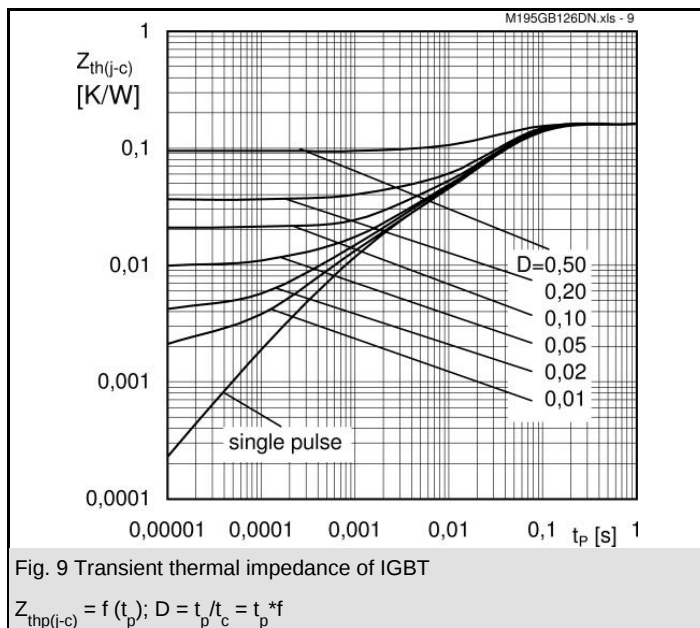
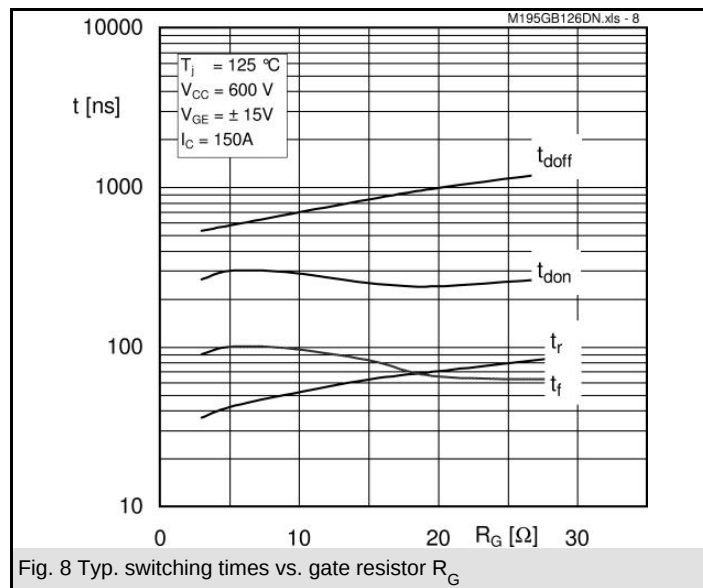
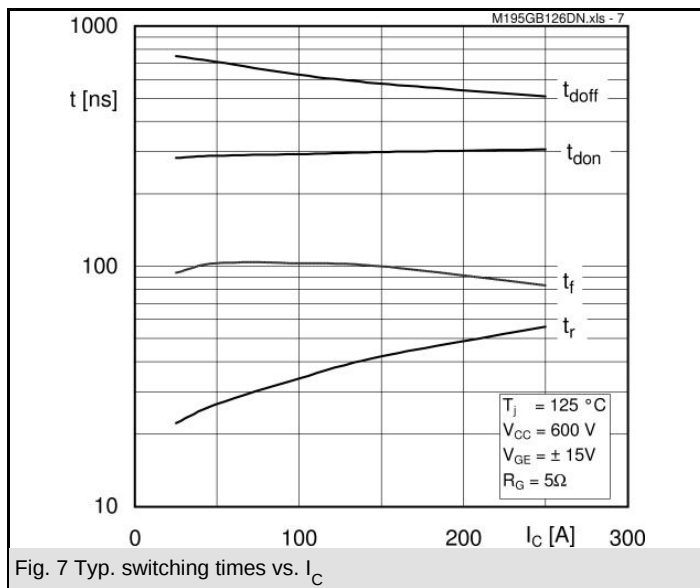
Absolute Maximum Ratings		$T_c = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT			
V_{CES}		1200	V
I_C	$T_c = 25 (80)^\circ\text{C}$	220 (160)	A
I_{CRM}	$t_p = 1 \text{ ms}$	300	A
V_{GES}		± 20	V
T_{vj} , (T_{stg})	$T_{OPERATION} \leq T_{stg}$	- 40 ... + 150 (125)	$^\circ\text{C}$
V_{isol}	AC, 1 min.	4000	V
Inverse diode			
I_F	$T_c = 25 (80)^\circ\text{C}$	200 (160)	A
I_{FRM}	$t_p = 1 \text{ ms}$	300	A
I_{FSM}	$t_p = 10 \text{ ms}$; sin.; $T_j = 150^\circ\text{C}$	1450	A
Freewheeling diode			
I_F	$T_c = 25 (80)^\circ\text{C}$	200 (160)	A
I_{FRM}	$T_c = 25 (80)^\circ\text{C}$; $t_p = 1 \text{ ms}$	440 (320)	A
I_{FSM}	$t_p = 10 \text{ ms}$; sin.; $T_j = 150^\circ\text{C}$	1450	A

Characteristics		$T_c = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$; $I_C = 6 \text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0$; $V_{CE} = V_{CES}$; $T_j = 25 (125)^\circ\text{C}$		0,2	0,6	mA
$V_{CE(TO)}$	$T_j = 25 (125)^\circ\text{C}$		1 (0,9)	1,15	V
r_{CE}	$V_{GE} = 15 \text{ V}$; $T_j = 25 (125)^\circ\text{C}$		4,7 (7,3)	6,7	m Ω
$V_{CE(sat)}$	$I_C = 150 \text{ A}$; $V_{GE} = 15 \text{ V}$; chip level		1,7 (2)	2,15	V
C_{ies}	under following conditions		10,5		nF
C_{oes}	$V_{GE} = 0$; $V_{CE} = 25 \text{ V}$; $f = 1 \text{ MHz}$		0,9		nF
C_{res}			0,8		nF
L_{CE}				25	nH
$R_{CC'+EE'}$	res.; terminal-chip $T_c = 25 (125)^\circ\text{C}$		0,75 (1)		m Ω
$t_{d(on)}$	$V_{CC} = 600 \text{ V}$; $I_C = 150 \text{ A}$		300		ns
t_r	$R_{Gon} = R_{Goff} = 5 \Omega$; $T_j = 125^\circ\text{C}$		40		ns
$t_{d(off)}$	$V_{GE} = \pm 15 \text{ V}$		560		ns
t_f			100		ns
$E_{on} (E_{off})$			16 (21)		mJ
Inverse diode					
$V_F = V_{EC}$	$I_F = 150 \text{ A}$; $V_{GE} = 0 \text{ V}$; $T_j = 25 (125)^\circ\text{C}$		1,6 (1,6)	1,8 (1,8)	V
$V_{(TO)}$	$T_j = 25 (125)^\circ\text{C}$		1 (0,8)	1,1 (0,9)	V
r_T	$T_j = 25 (125)^\circ\text{C}$		4 (5,3)	4,7 (6)	m Ω
I_{RRM}	$I_F = 150 \text{ A}$; $T_j = 125 ()^\circ\text{C}$		200		A
Q_{rr}	$di/dt = 2000 \text{ A}/\mu\text{s}$		33		μC
E_{rr}	$V_{GE} = 0 \text{ V}$		14,5		mJ
FWD					
$V_F = V_{EC}$	$I_F = 150 \text{ A}$; $V_{GE} = 0 \text{ V}$; $T_j = 25 (125)^\circ\text{C}$		1,6 (1,6)	1,8 (1,8)	V
$V_{(TO)}$	$T_j = 25 (125)^\circ\text{C}$		1 (0,8)	1,1 (0,9)	V
r_T	$T_j = 25 (125)^\circ\text{C}$		4 (5,3)	4,7 (6)	m Ω
I_{RRM}	$I_F = 150 \text{ A}$; $T_j = 125 ()^\circ\text{C}$		200		A
Q_{rr}	$di/dt = 2000 \text{ A}/\mu\text{s}$		33		μC
E_{rr}	$V_{GE} = 0 \text{ V}$		14,5		mJ
Thermal characteristics					
$R_{th(j-c)}$	per IGBT			0,16	K/W
$R_{th(j-c)D}$	per Inverse Diode			0,32	K/W
$R_{th(j-c)FD}$	per FWD			0,32	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

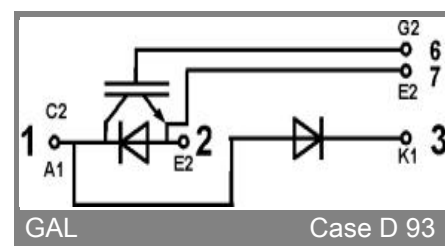
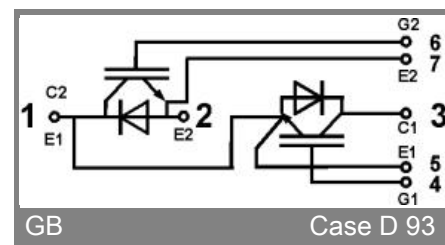
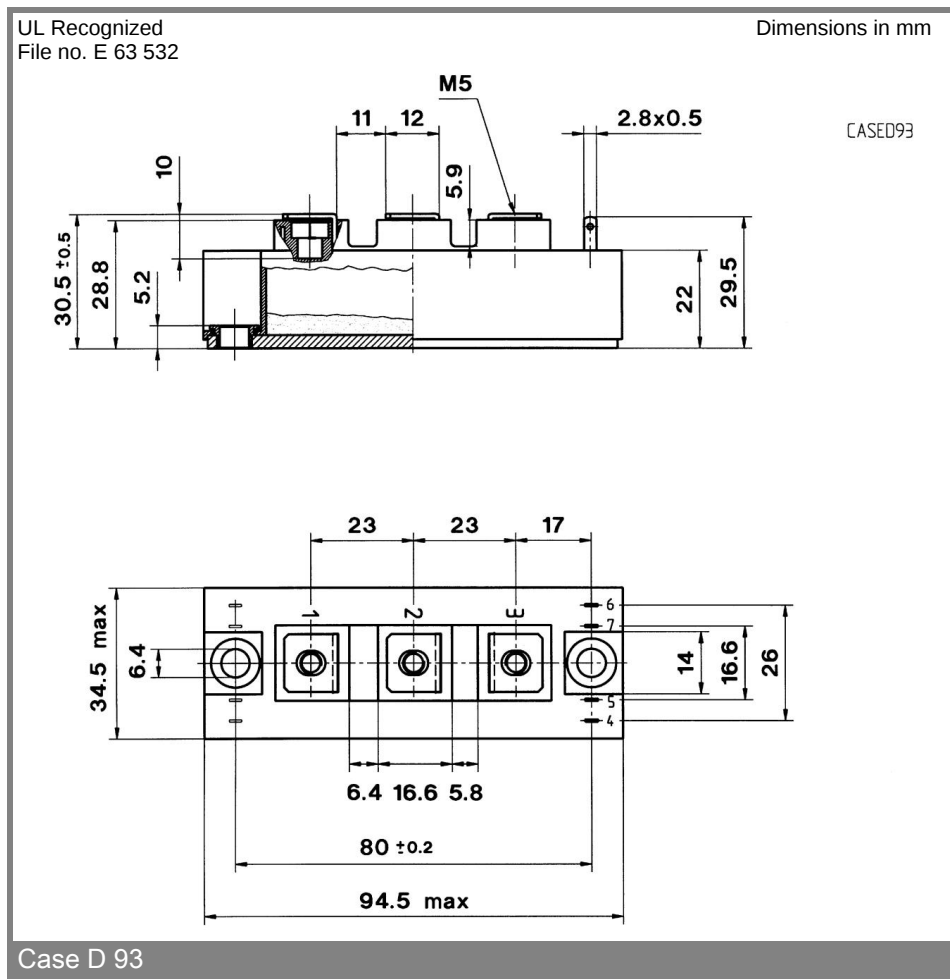
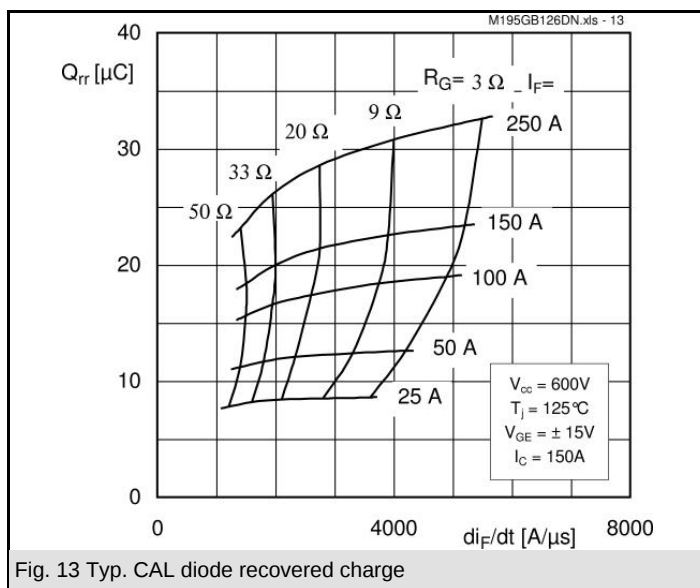
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This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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