

SKM 600GA126D



SEMITRANS® 4

Trench IGBT Modules

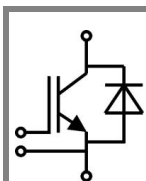
SKM 600GA126D

Features

- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications*

- AC inverter drives
- UPS
- Electronic welders



GA

Absolute Maximum Ratings		$T_{case} = 25^\circ\text{C}$, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V_{CES}	$T_j = 25^\circ\text{C}$	1200	V	
I_C	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	660	A
		$T_c = 80^\circ\text{C}$	460	A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$	800	A	
V_{GES}		± 20	V	
t_{psc}	$V_{CC} = 600\text{ V}; V_{GE} \leq 20\text{ V}; T_j = 125^\circ\text{C}$ $V_{CES} < 1200\text{ V}$	10	μs	
Inverse Diode				
I_F	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	490	A
		$T_c = 80^\circ\text{C}$	340	A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$	800	A	
I_{FSM}	$t_p = 10\text{ ms}; \text{sin.}$	$T_j = 150^\circ\text{C}$	2900	A
Module				
$I_{t(RMS)}$		500	A	
T_{vj}		-40 ... +150	$^\circ\text{C}$	
T_{stg}		-40 ... +125	$^\circ\text{C}$	
V_{isol}	AC, 1 min.	4000	V	

Characteristics		$T_{case} = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 16\text{ mA}$	5	5,8	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$	$T_j = 25^\circ\text{C}$	0,2	0,6	mA
		$T_j = 125^\circ\text{C}$			mA
V_{CE0}		$T_j = 25^\circ\text{C}$	1	1,2	V
		$T_j = 125^\circ\text{C}$	0,9	1,1	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}$	1,8	2,4	$\text{m}\Omega$
		$T_j = 125^\circ\text{C}$	2,8	3,4	$\text{m}\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 400\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}_{chiplev.}$	1,7	2,15	V
		$T_j = 125^\circ\text{C}_{chiplev.}$	2	2,45	V
C_{ies}	$V_{CE} = 25, V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	29		nF
C_{oes}			1,5		nF
C_{res}			1,3		nF
Q_G	$V_{GE} = -8\text{ V} - +20\text{ V}$		3600		nC
R_{Gint}	$T_j = ^\circ\text{C}$		1,88		Ω
$t_{d(on)}$	$R_{Gon} = 2\ \Omega$	$V_{CC} = 600\text{ V}$ $I_C = 400\text{ A}$	330		ns
t_r			65		ns
E_{on}			39		mJ
$t_{d(off)}$	$R_{Goff} = 2\ \Omega$	$T_j = 125^\circ\text{C}$ $V_{GE} = \pm 15\text{ V}$	630		ns
t_f			130		ns
E_{off}			64		mJ
$R_{th(j-c)}$	per IGBT			0,055	K/W



SEMITRANS® 4

Trench IGBT Modules

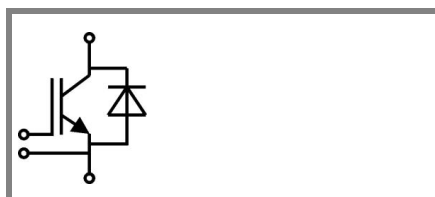
SKM 600GA126D

Features

- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability, self limiting to $6 \times I_C$

Typical Applications*

- AC inverter drives
- UPS
- Electronic welders

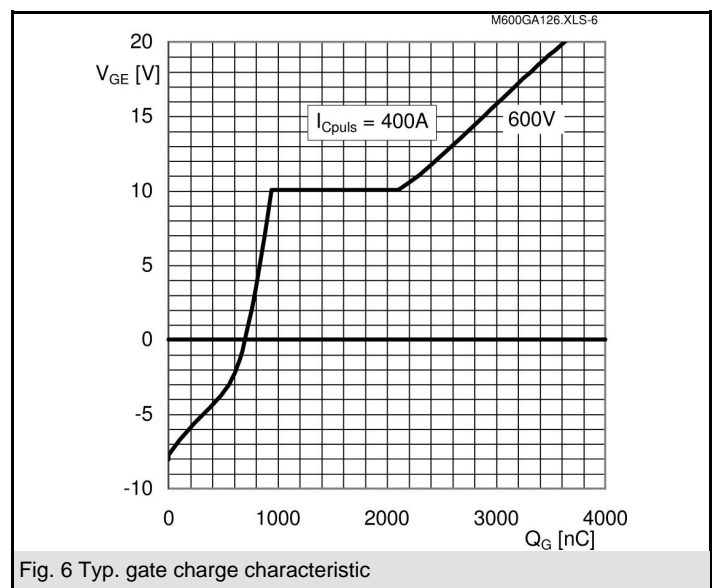
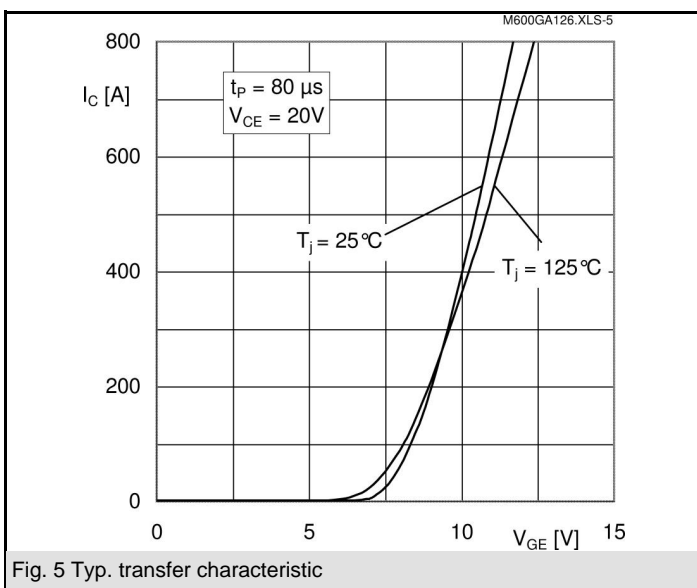
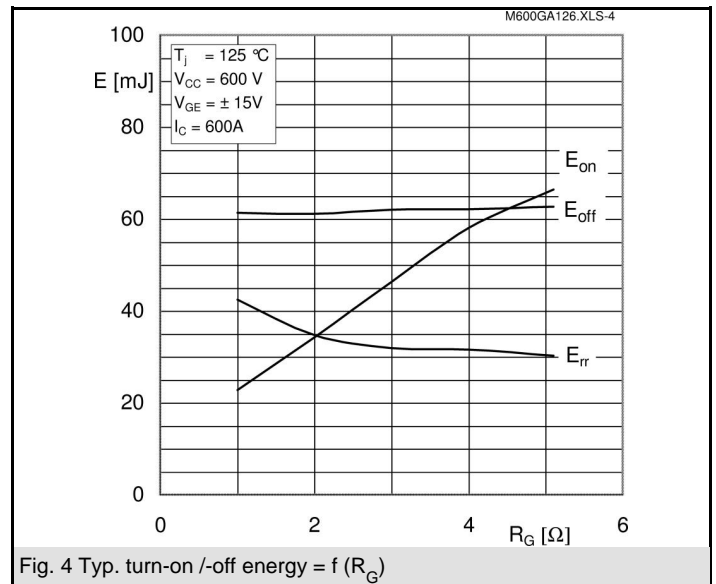
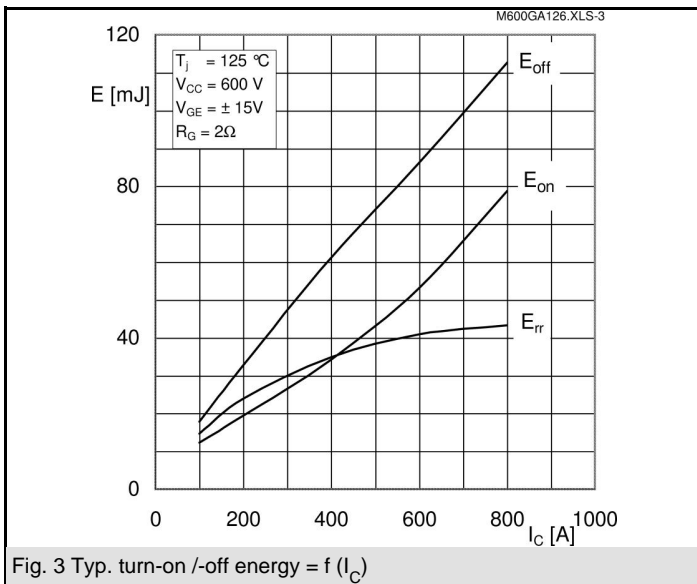
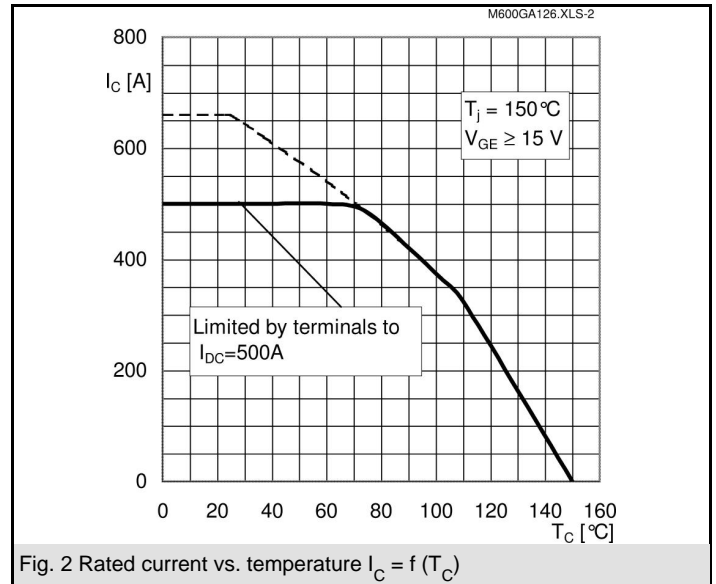
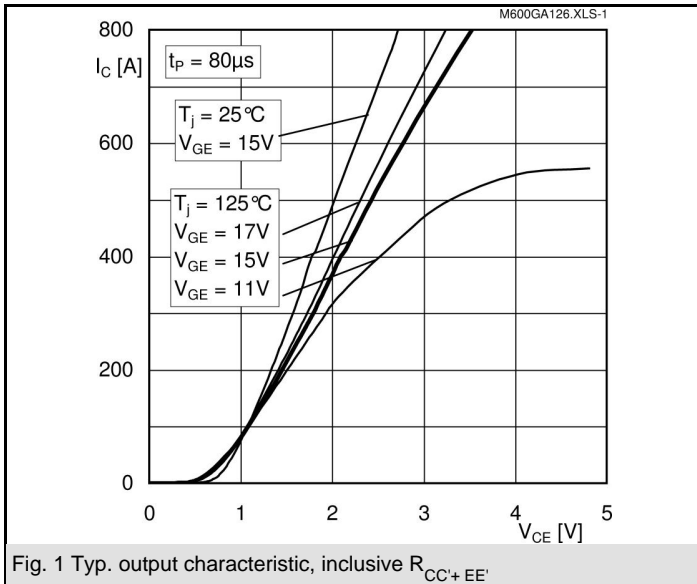


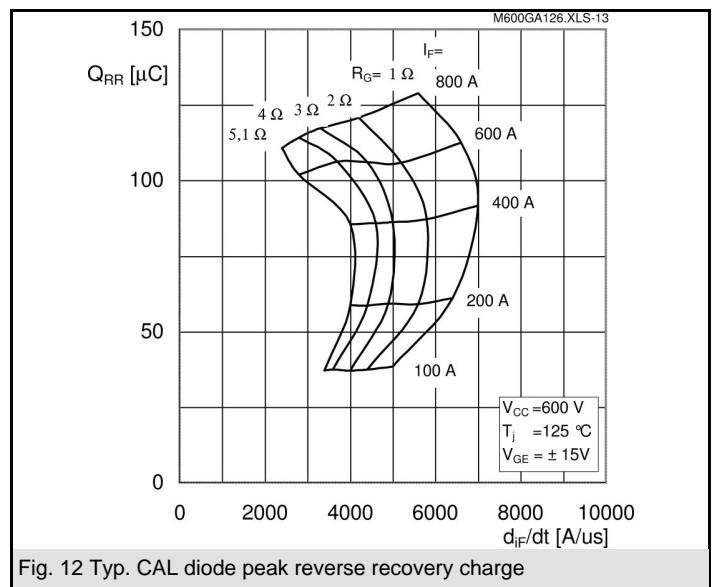
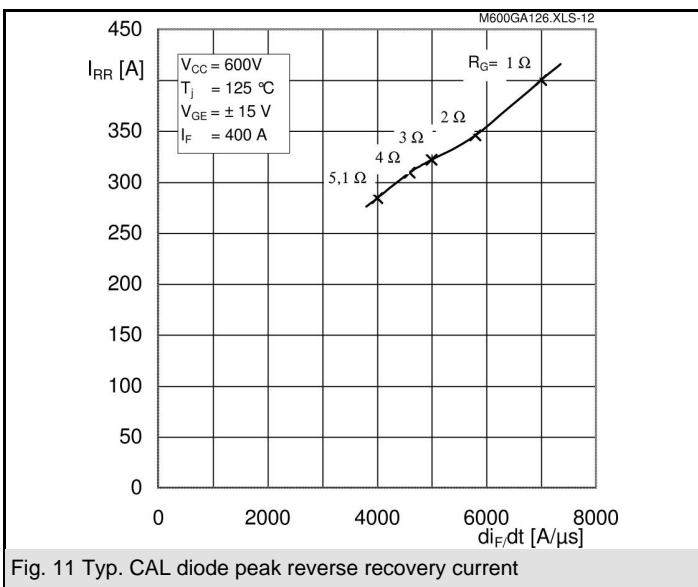
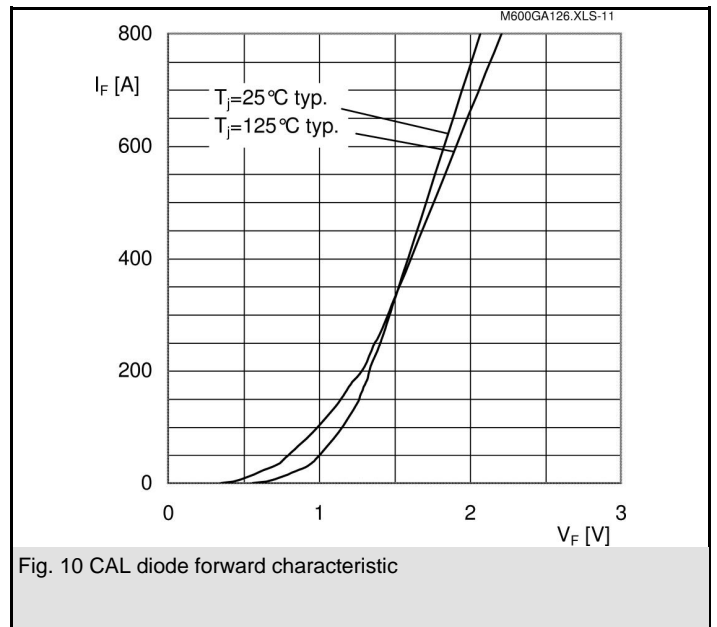
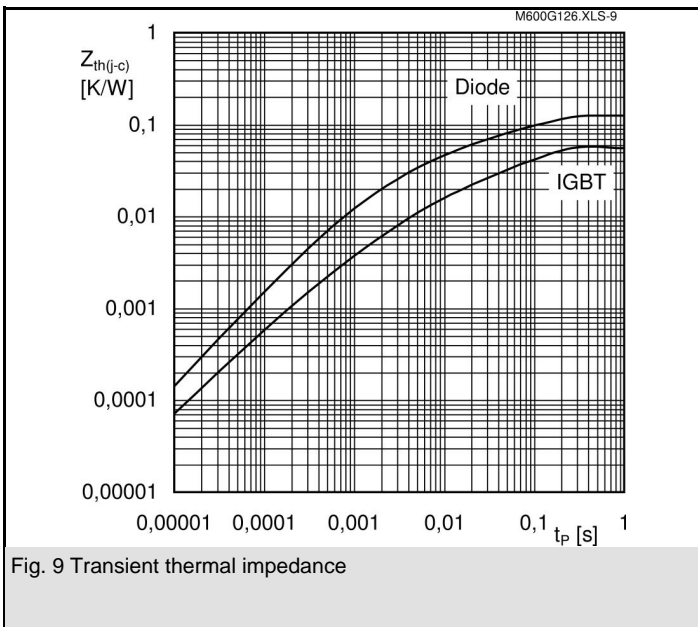
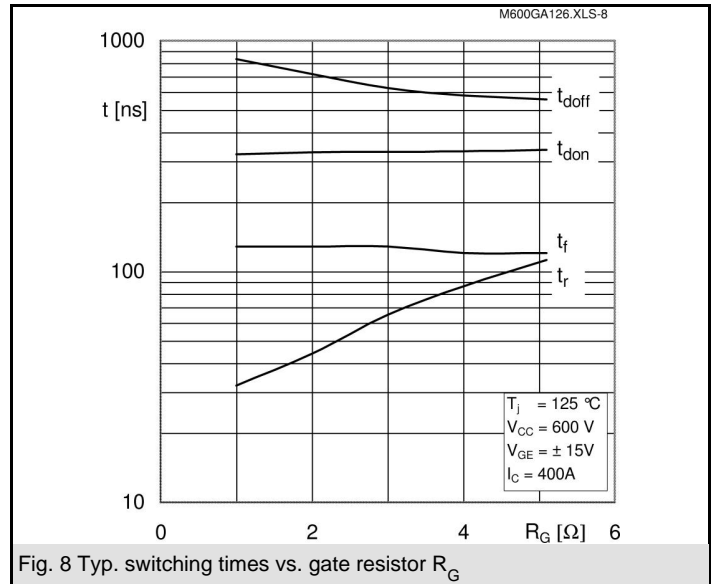
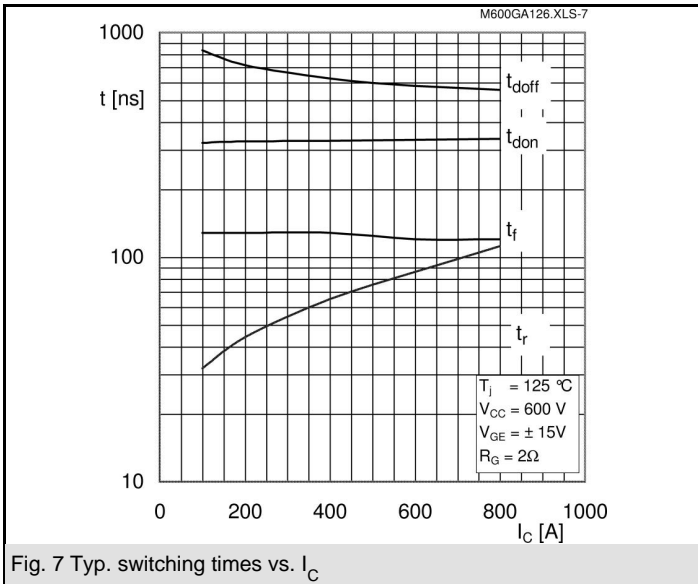
GA

Characteristics			min.	typ.	max.	Units
Symbol	Conditions					
Inverse diode						
$V_F = V_{EC}$	$I_{Fnom} = 400 \text{ A}; V_{GE} = 0 \text{ V}$	$T_j = 25 \text{ }^\circ\text{C}_{chiplev.}$		1,6	1,8	V
		$T_j = 125 \text{ }^\circ\text{C}_{chiplev.}$		1,6	1,8	V
V_{F0}		$T_j = 25 \text{ }^\circ\text{C}$		1	1,1	V
		$T_j = 125 \text{ }^\circ\text{C}$		0,8	0,9	V
r_F		$T_j = 25 \text{ }^\circ\text{C}$		1,5	1,8	mΩ
		$T_j = 125 \text{ }^\circ\text{C}$		2	2,3	mΩ
I_{RRM}	$I_F = 400 \text{ A}$	$T_j = 125 \text{ }^\circ\text{C}$		350		A
Q_{rr}	$di/dt = 5800 \text{ A}/\mu\text{s}$			87		μC
E_{rr}	$V_{GE} = -15 \text{ V}; V_{CC} = 600 \text{ V}$					mJ
$R_{th(j-c)D}$	per diode				0,125	K/W
Module						
L_{CE}				15	20	nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25 \text{ }^\circ\text{C}$		0,18		mΩ
		$T_{case} = 125 \text{ }^\circ\text{C}$		0,22		mΩ
$R_{th(c-s)}$	per module				0,038	K/W
M_s	to heat sink M6			3	5	Nm
M_t	to terminals M6 (M4)			2,5 (1,1)	5 (2)	Nm
w					330	g

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

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.



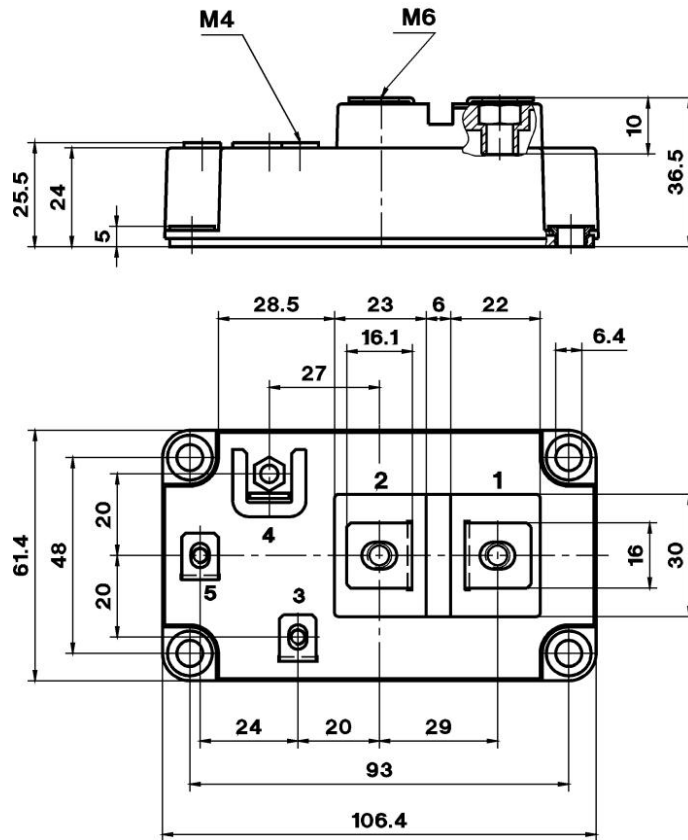


SKM 600GA126D

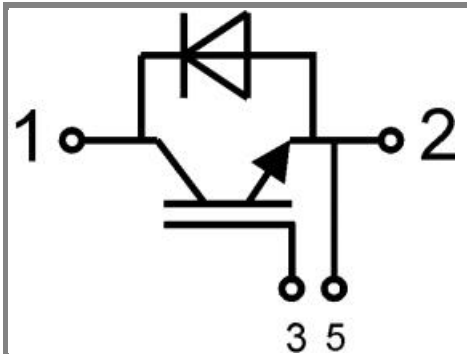
UL Recognized

CASED59

File no. 63532



Case D 59



GA

Case D59