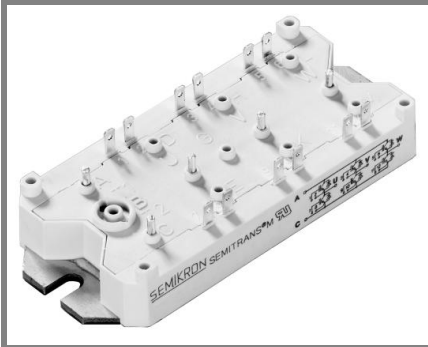


# SKM 100GD063DL



**SEMITRANS® 6**

## Superfast NPT-IGBT Module

SKM 100GD063DL

### Features

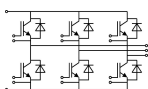
- Si structure (NPT IGBT)
- $V_{CE(sat)}$  with positive temperature coefficient
- High short circuit capability, self limiting to  $6 \times I_C$

### Typical Applications

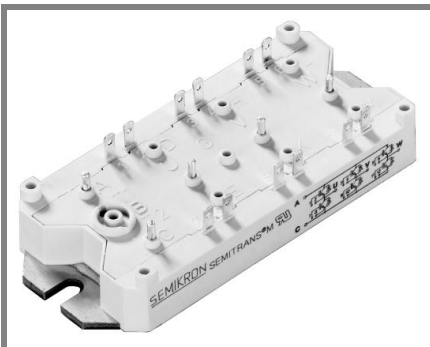
- Switched mode power supplies
- Three phase inverters for AC motor speed control
- For  $f_{sw} > 10$  kHz

Absolute Maximum Ratings		$T_{case} = 25^\circ\text{C}$ , unless otherwise specified		
Symbol	Conditions	Values	Units	
<b>IGBT</b>				
$V_{CES}$	$T_j = 25^\circ\text{C}$	600	V	
$I_C$	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	130	A
		$T_c = 80^\circ\text{C}$	95	A
$I_{CRM}$	$I_{CRM} = 2 \times I_{Cnom}$	200	A	
$V_{GES}$		$\pm 20$	V	
$t_{psc}$	$V_{CC} = 300$ V; $V_{GE} \leq 20$ V; $T_j = 125^\circ\text{C}$ $V_{CES} < 600$ V	10	$\mu\text{s}$	
<b>Inverse Diode</b>				
$I_F$	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	100	A
		$T_c = 80^\circ\text{C}$	75	A
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}$	200	A	
$I_{FSM}$	$t_p = 10$ ms; sin.	$T_j = 150^\circ\text{C}$	720	A
<b>Module</b>				
$I_{t(RMS)}$			A	
$T_{vj}$		- 40 ... +150	$^\circ\text{C}$	
$T_{stg}$		- 40 ... +125	$^\circ\text{C}$	
$V_{isol}$	AC, 1 min.	2500	V	

Characteristics		$T_{case} = 25^\circ\text{C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT</b>					
$V_{GE(th)}$	$V_{GE} = V_{CE}$ , $I_C = 3$ mA	4,5	5,5	6,5	V
$I_{CES}$	$V_{GE} = 0$ V, $V_{CE} = V_{CES}$		0,15	0,45	mA
$V_{CE0}$		$T_j = 25^\circ\text{C}$	1,05		V
		$T_j = 125^\circ\text{C}$	1		V
$r_{CE}$	$V_{GE} = 15$ V	$T_j = 25^\circ\text{C}$	10,5		m $\Omega$
		$T_j = 125^\circ\text{C}$	14		m $\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 100$ A, $V_{GE} = 15$ V	$T_j = 25^\circ\text{C}_{chiplev.}$	2,1	2,5	V
		$T_j = 125^\circ\text{C}_{chiplev.}$	2,4	2,8	V
$C_{ies}$	$V_{CE} = 25$ , $V_{GE} = 0$ V	$f = 1$ MHz	5,6		nF
$C_{oes}$			0,6		nF
$C_{res}$			0,4		nF
$Q_G$	$V_{GE} = 0$ V...15V		240		nC
$t_{d(on)}$	$R_{Gon} = 10$ $\Omega$	$V_{CC} = 300$ V $I_C = 100$ A	50		ns
$t_r$			40		ns
$E_{on}$	$R_{Goff} = 10$ $\Omega$	$T_j = 125^\circ\text{C}$ $V_{GE} = \pm 15$ V	4		mJ
$t_{d(off)}$			300		ns
$t_f$			35		ns
$E_{off}$			3		mJ
$R_{th(j-c)}$	per IGBT			0,27	K/W



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**SEMITRANS® 6**

## Superfast NPT-IGBT Module

**SKM 100GD063DL**

### Features

- Si structure (NPT IGBT)
- $V_{CE(sat)}$  with positive temperature coefficient
- High short circuit capability, self limiting to  $6 \times I_C$

### Typical Applications

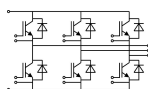
- Switched mode power supplies
- Three phase inverters for AC motor speed control
- For  $f_{sw} > 10$  kHz

### Characteristics

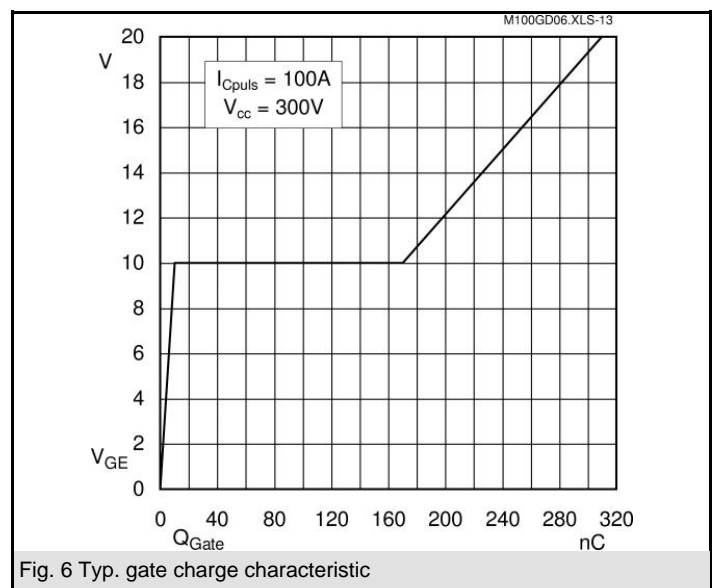
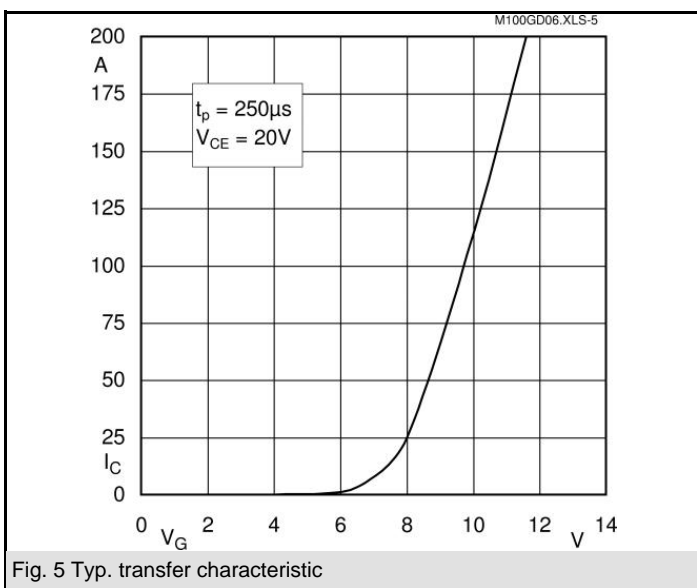
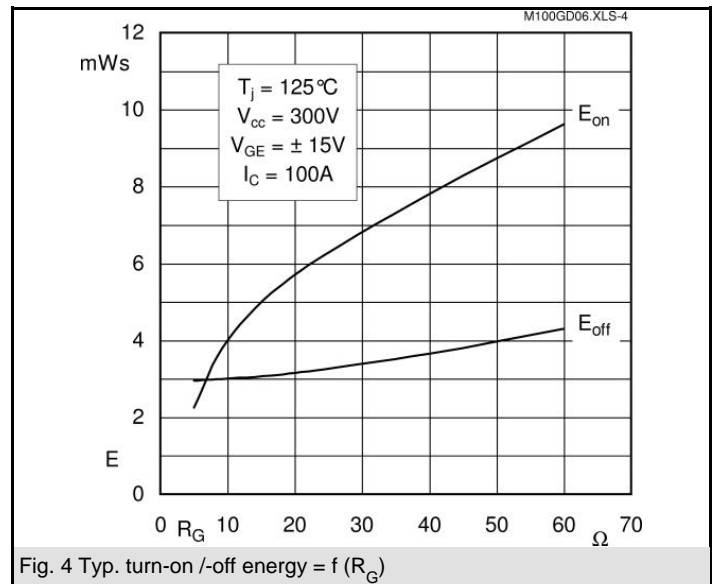
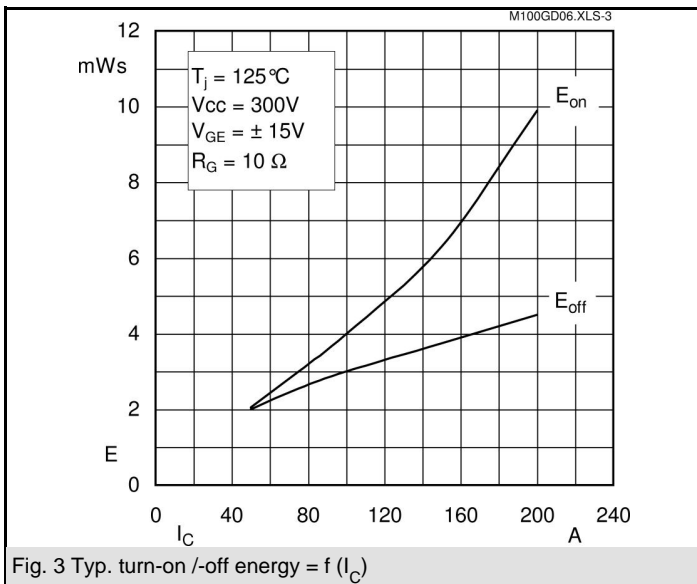
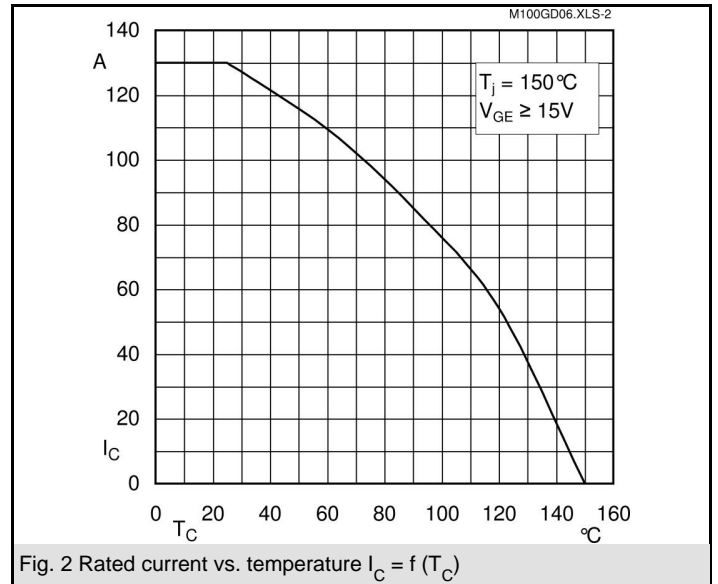
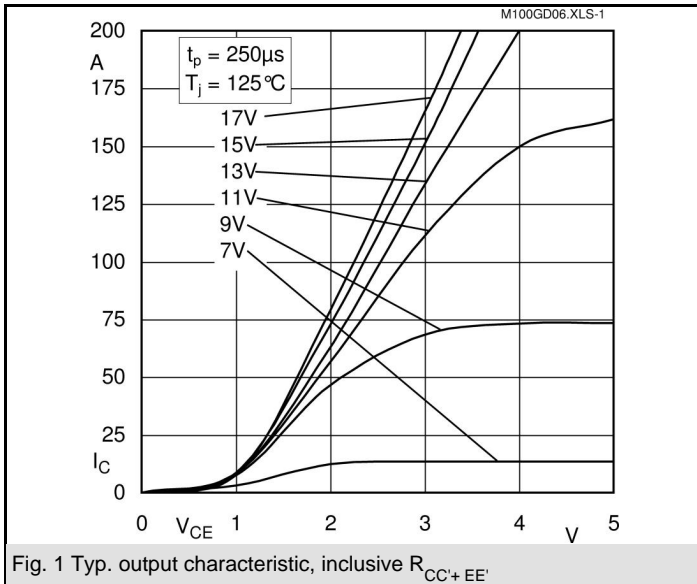
Symbol	Conditions	min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 100$ A; $V_{GE} = 0$ V	$T_j = 25$ °C <sub>chiplev.</sub>	1,55	1,9	V
		$T_j = 125$ °C <sub>chiplev.</sub>	1,55		V
$V_{F0}$				0,9	V
$r_F$				10	mΩ
$I_{RRM}$	$I_F = 100$ A		8		A
$Q_{rr}$	$di/dt = 1000$ A/μs		44		μC
$E_{rr}$	$V_{GE} = -15$ V; $V_{CC} = 600$ V		1,5		mJ
$R_{th(j-c)D}$	per diode			0,6	K/W
<b>Module</b>					
$L_{CE}$				60	nH
$R_{th(c-s)}$	per module			0,05	K/W
$M_s$	to heat sink M5	4		5	Nm
w				175	g

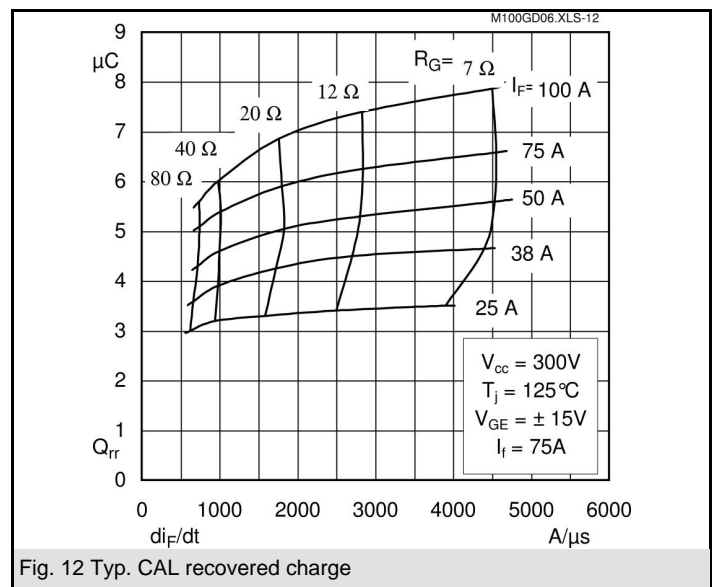
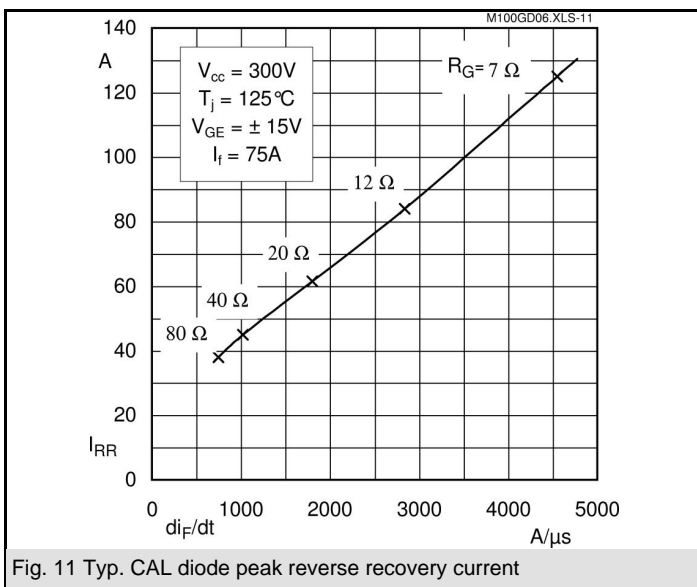
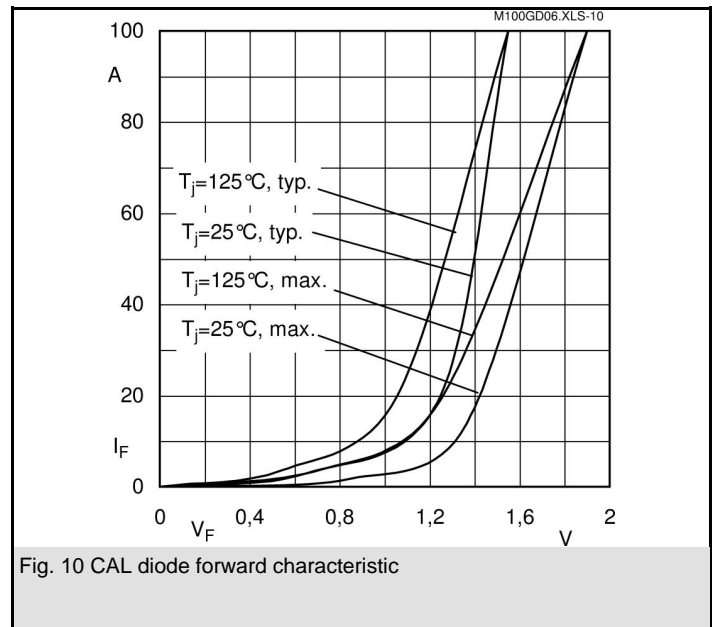
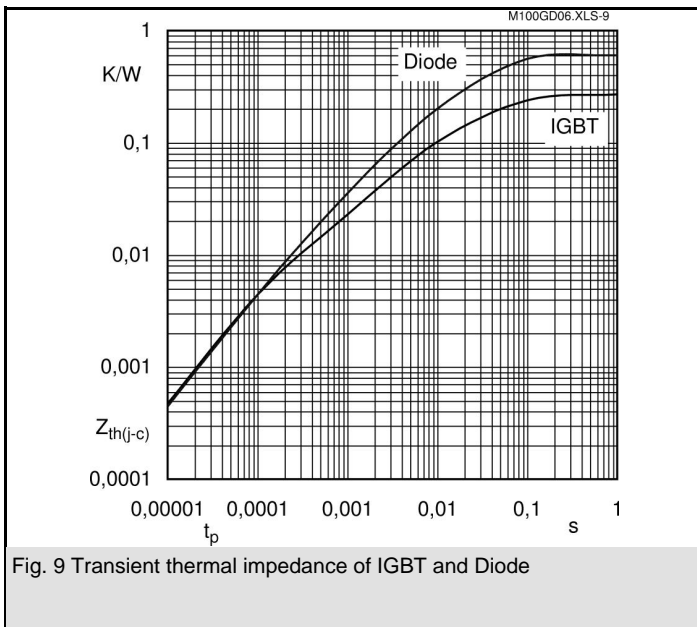
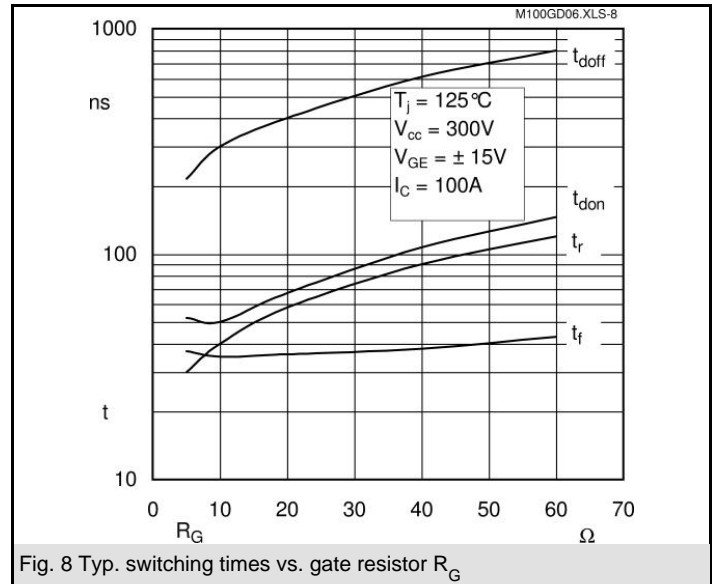
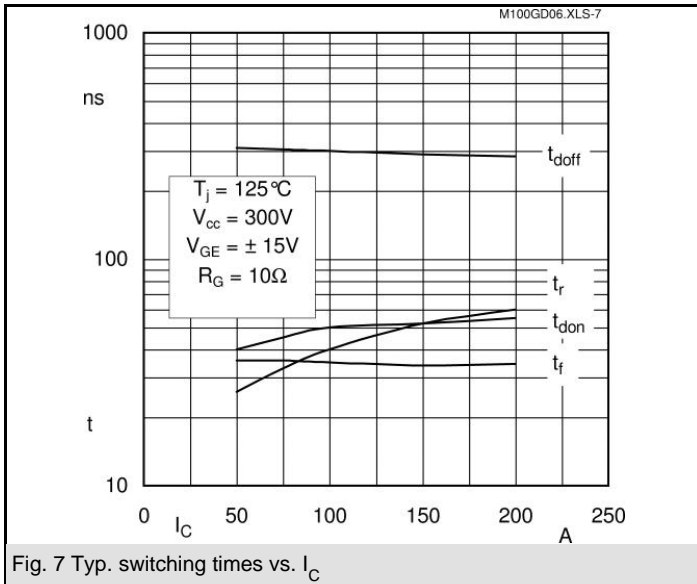
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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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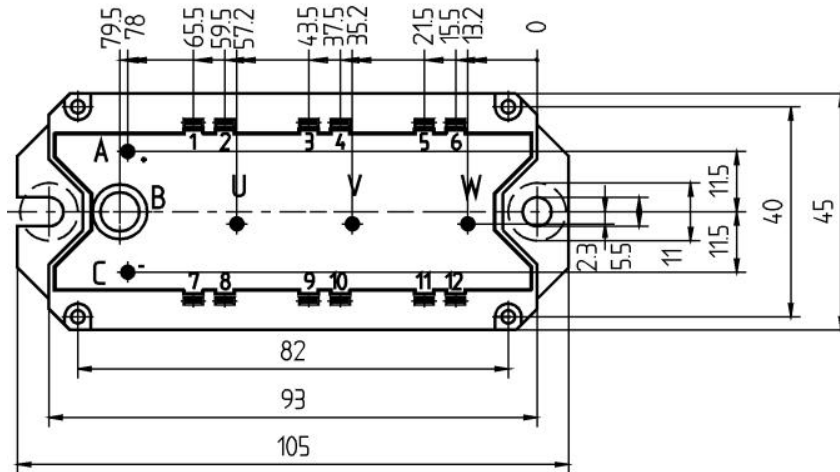
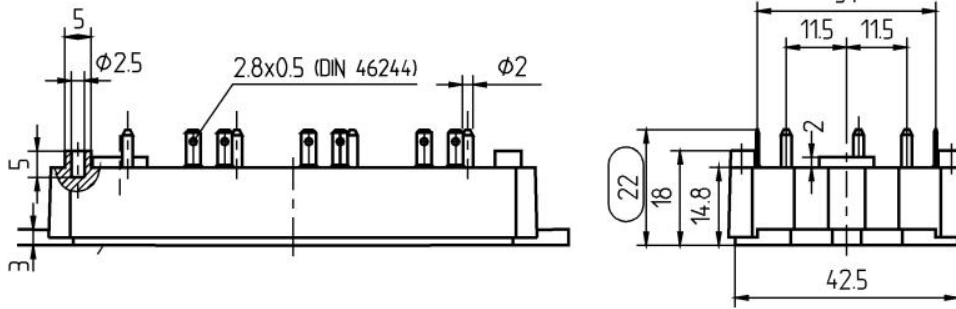


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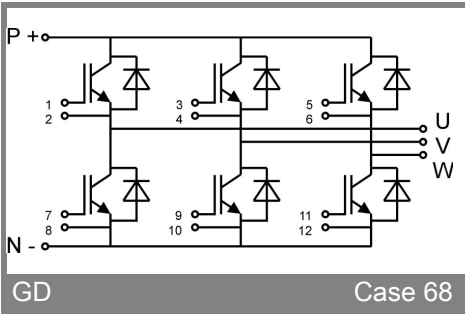
UL recognized file

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Case D 68



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Case 68