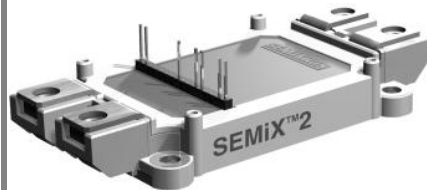


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SEMiX® 2

Trench IGBT Modules

SEMiX 202GB066HD

Preliminary Data

Features

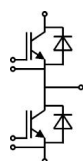
- Homogeneous Si
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient

Typical Applications

- Matrix Converter
- Resonant Inverter
- Current Source Inverter

Remarks

- Case temperature limited to $T_C = 125^\circ\text{C}$ max.
- Product reliability results are valid for $T_J = 150^\circ\text{C}$
- use of soft RG necessary take care of over-voltage caused by stray inductance
- not for new design

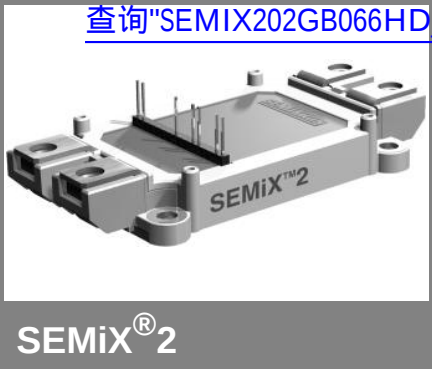


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Absolute Maximum Ratings		T _{case} = 25°C, unless otherwise specified		
Symbol	Conditions	Values	Units	
IGBT				
V _{CES}	T _j = 25 °C	600	V	
I _C	T _j = 175 °C	T _c = 25 °C	275	A
		T _c = 80 °C	205	A
I _{CRM}	I _{CRM} =2xI _{Cnom}	400	A	
V _{GES}		± 20	V	
t _{psc}	V _{CC} = 360 V; V _{GE} ≤ 15 V; T _j = 150 °C V _{CES} < 600 V	6	µs	
Inverse Diode				
I _F	T _j = 175 °C	T _c = 25 °C	290	A
		T _c = 80 °C	210	A
I _{FRM}	I _{FRM} =2xI _{Fnom}	400	A	
I _{FSM}	t _p = 10 ms; sin. T _j = 25 °C	1000	A	
Module				
I _{t(RMS)}		600	A	
T _{vj}		- 40 ... + 175	°C	
T _{stg}		- 40 ... + 125	°C	
V _{isol}	AC, 1 min.	4000	V	

Characteristics		T _{case} = 25°C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 3,2 mA		5,8		V
I _{CES}	V _{GE} = 0 V, V _{CE} = V _{CES} T _j = 25 °C			0,45	mA
V _{CE0}	T _j = 25 °C T _j = 150 °C		0,9	1	V
			0,85	0,9	V
r _{CE}	V _{GE} = 15 V T _j = 25°C T _j = 150°C		2,75	4,5	mΩ
			4,25	6	mΩ
V _{CE(sat)}	I _{Cnom} = 200 A, V _{GE} = 15 V T _j = 25°C _{chiplev.} T _j = 150°C _{chiplev.}		1,45	1,9	V
			1,7	2,1	V
C _{ies}	V _{CE} = 25, V _{GE} = 0 V f = 1 MHz		12,1		nF
C _{oes}			0,75		nF
C _{res}			0,35		nF
Q _G	V _{GE} = -8 ... +15V		1600		nC
t _{d(on)}	R _{Gon} = 4,2 Ω	V _{CC} = 300V I _{Cnom} = 200A T _j = 150 °C	65		ns
t _r			80		ns
E _{on}	6			mJ	
t _{d(off)}	R _{Goff} = 4,2 Ω		545		ns
t _f			95		ns
E _{off}		8		mJ	
R _{th(j-c)}	per IGBT			0,21	K/W



Trench IGBT Modules

SEMiX 202GB066HD

Preliminary Data

Features

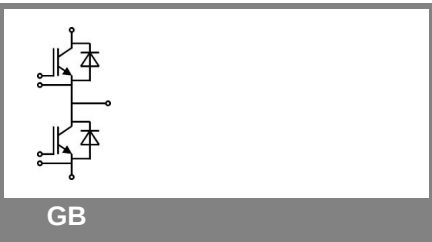
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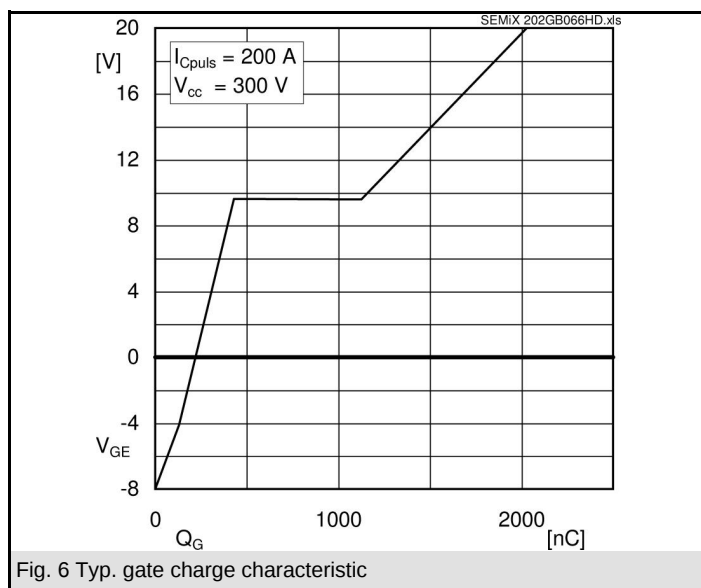
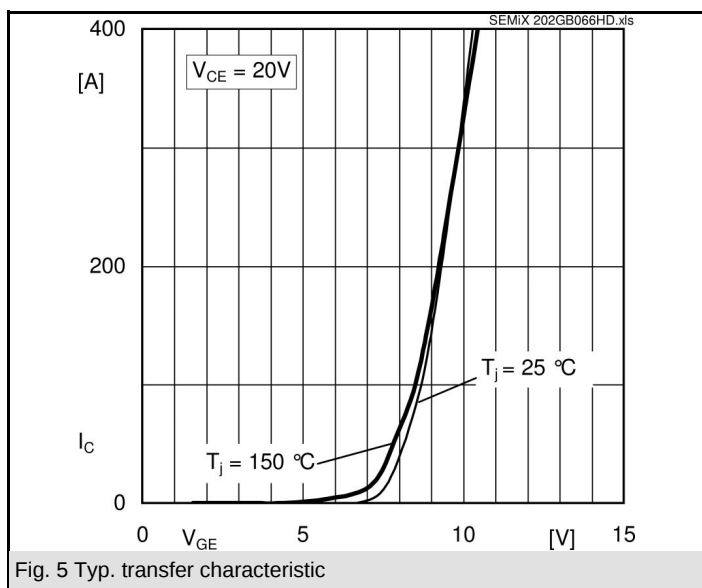
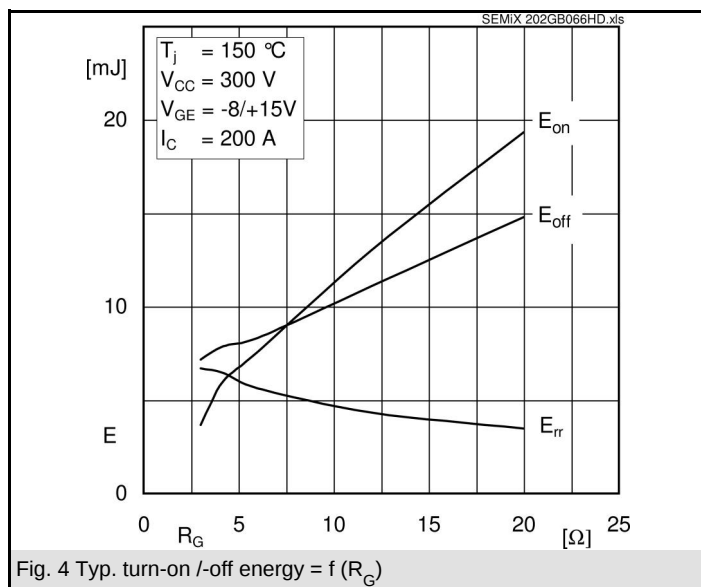
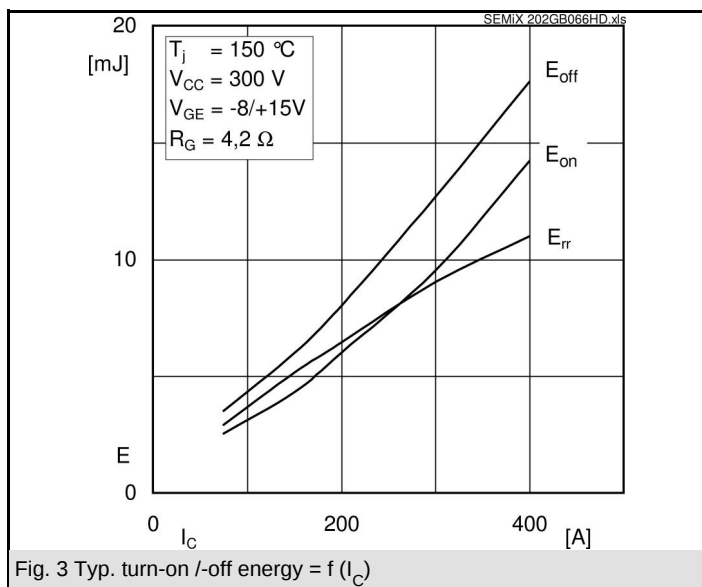
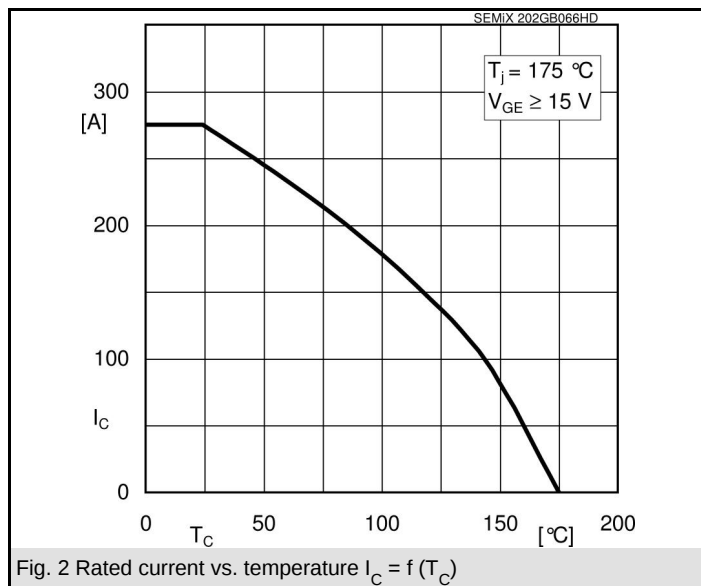
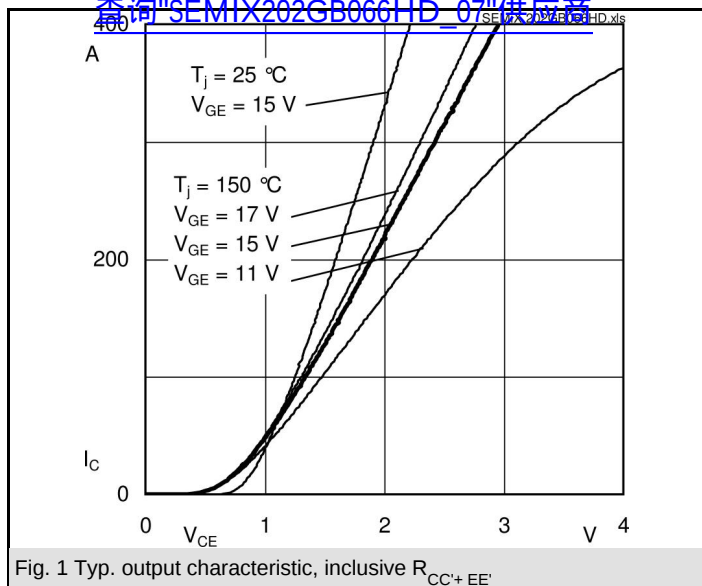
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Characteristics					
Symbol	Conditions		min.	typ.	max. Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 200\text{ A}$; $V_{GE} = 0\text{ V}$	$T_j = 25\text{ }^{\circ}\text{C}_{chiplev.}$		1,4	1,6 V
		$T_j = 150\text{ }^{\circ}\text{C}_{chiplev.}$		1,4	1,6 V
V_{F0}		$T_j = 25\text{ }^{\circ}\text{C}$		1	1,1 V
		$T_j = 150\text{ }^{\circ}\text{C}$		0,85	0,95 V
r_F		$T_j = 25\text{ }^{\circ}\text{C}$		2	2,5 mΩ
		$T_j = 150\text{ }^{\circ}\text{C}$		2,75	3,25 mΩ
I_{RRM}	$I_{Fnom} = 200\text{ A}$	$T_j = 150\text{ }^{\circ}\text{C}$		205	A
Q_{rr}	$di/dt = 3900\text{ A}/\mu\text{s}$			28	μC
E_{rr}	$V_{GE} = -8\text{ V}$; $V_{CC} = 300\text{ V}$			6,5	mJ
$R_{th(j-c)D}$	per diode				0,27 K/W
Module					
L_{CE}				18	nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25\text{ }^{\circ}\text{C}$		0,7	mΩ
		$T_{case} = 125\text{ }^{\circ}\text{C}$		1	mΩ
$R_{th(c-s)}$	per module			0,045	K/W
M_s	to heat sink (M5)		3		5 Nm
M_t	to terminals (M6)		2,5		5 Nm
w					250 g
Temperature sensor					
R_{100}	$T_c=100^{\circ}\text{C}$ ($R_{25}=5\text{ k}\Omega$)			0,493±5%	kΩ
$B_{100/125}$	$R(T)=R_{100}\exp[B_{100/125}(1/T-1/T_{100})]$; $T[K]$; B			3550±2%	K

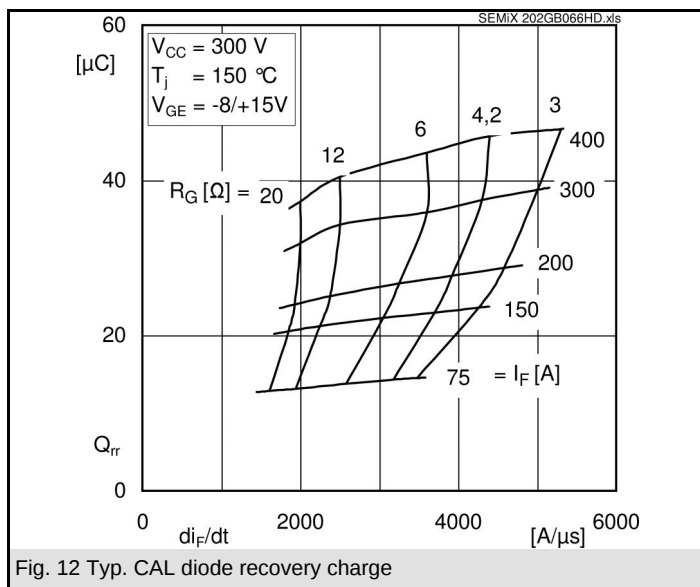
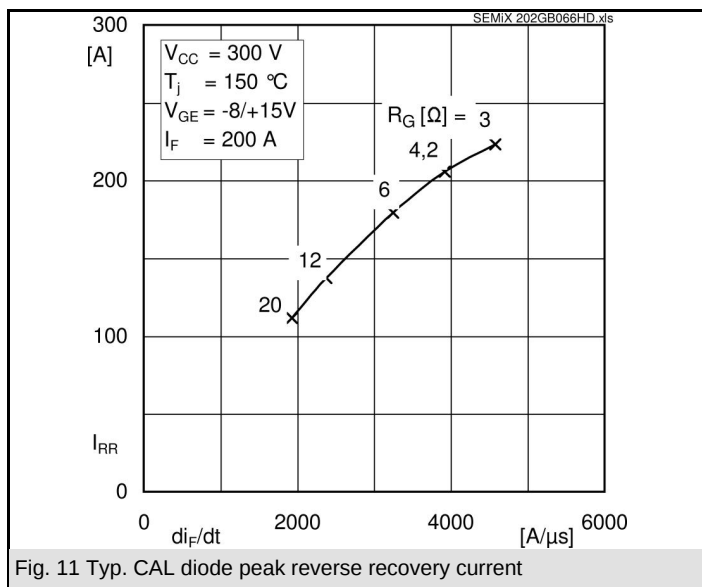
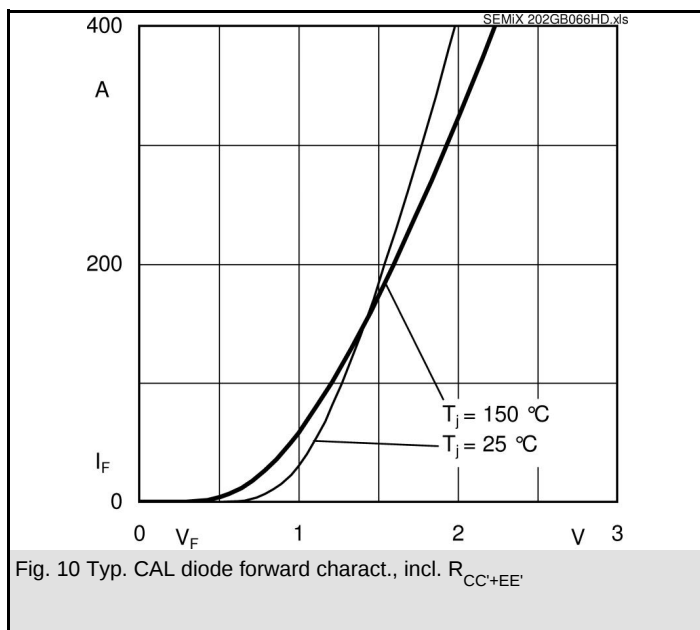
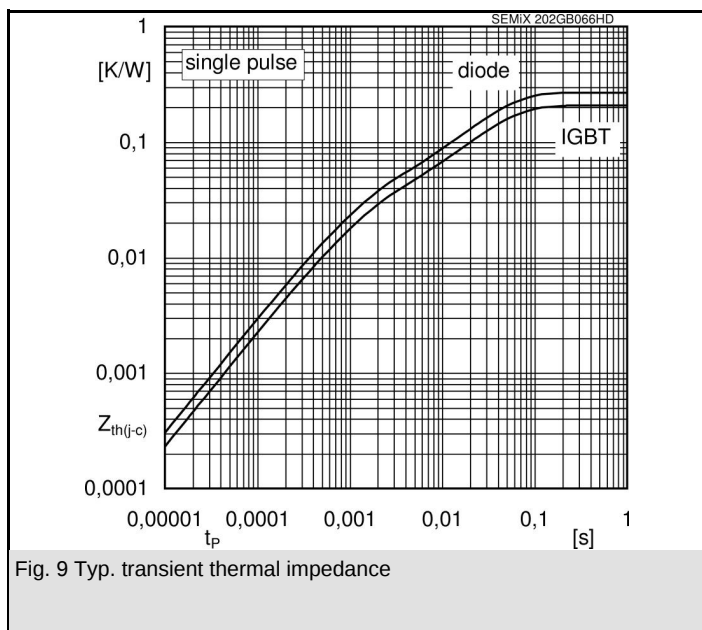
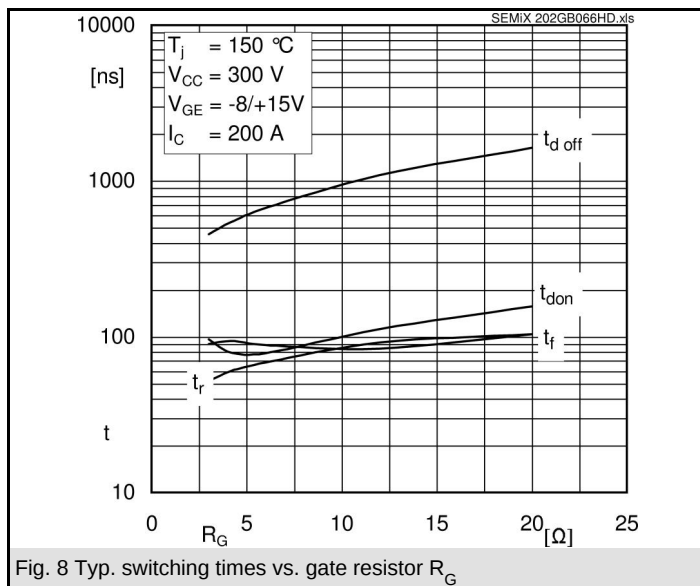
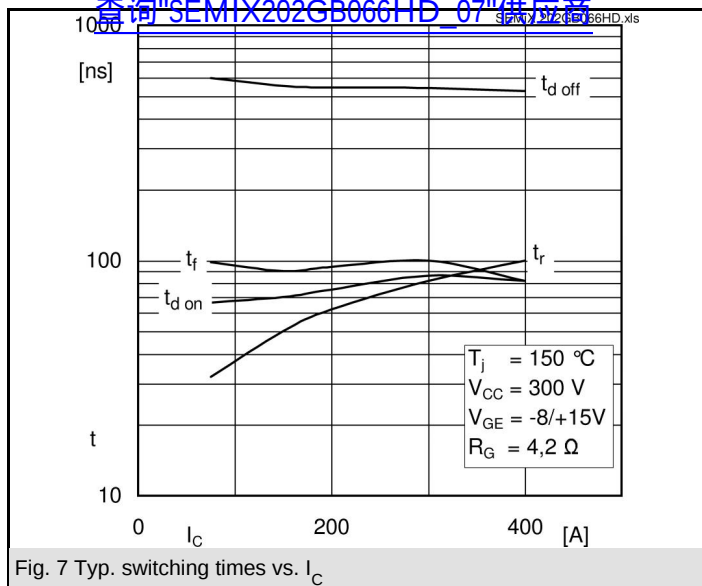
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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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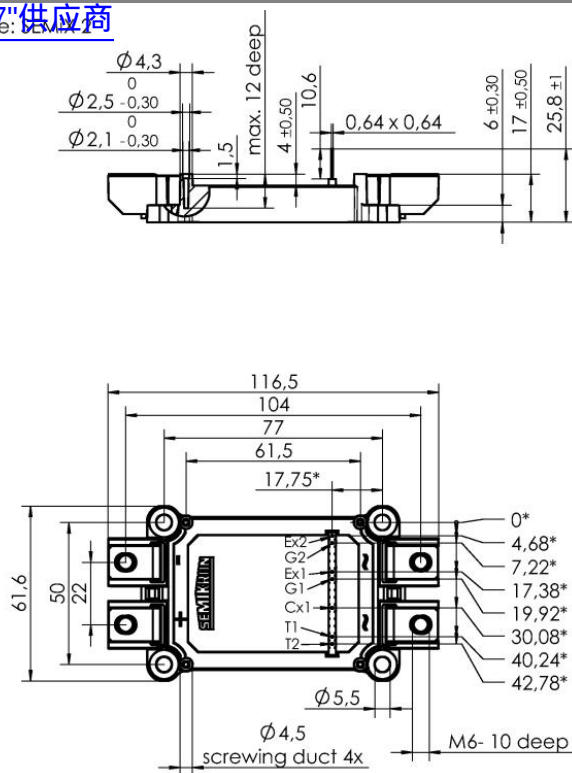


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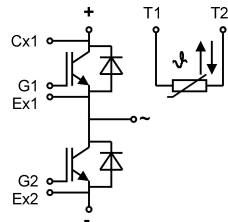
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Case: SEMiX 2



*= all measures with $\phi 0,5$

Case SEMiX 2



Pinout

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