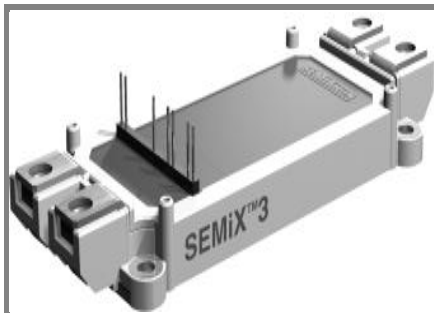


SEMIX 553GB128D



SEMIX® 3

SPT IGBT Modules

SEMIX 553GB128D

Preliminary Data

Features

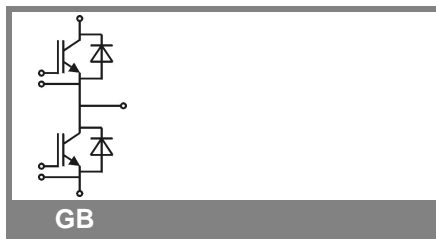
- Homogeneous Si
- SPT = Soft-Punch-Through technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability

Typical Applications

- AC inverter drives
- UPS
- Electronic welders up to 20 kHz

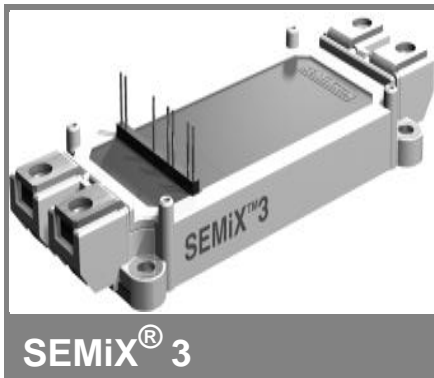
Remarks

- Not for new design



Absolute Maximum Ratings		$T_{case} = 25^{\circ}C$, unless otherwise specified			
Symbol	Conditions	Values			Units
IGBT					
V_{CES}	$T_j = 25^{\circ}C$	1200			V
I_C	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	540		A
		$T_{case} = 80^{\circ}C$	380		A
I_{CRM}	$I_{CRM} = 2 \times I_{Cnom}$, $t_p = 1\text{ ms}$	600			A
V_{GES}		± 20			V
t_{psc}	$V_{CC} = 600\text{ V}$; $V_{GE} \leq 20\text{ V}$; $T_j = 125^{\circ}C$ $V_{CES} < 1200\text{ V}$	10			μs
Inverse Diode					
I_F	$T_j = 150^{\circ}C$	$T_{case} = 25^{\circ}C$	420		A
		$T_{case} = 80^{\circ}C$	280		A
I_{FRM}	$I_{FRM} = 2 \times I_{Fnom}$, $t_p = 1\text{ ms}$	600			A
I_{FSM}	$t_p = 10\text{ ms}$; sin.	$T_j = 25^{\circ}C$	2300		A
Module					
$I_{t(RMS)}$		600			A
T_{vj}		-40 ... +150			$^{\circ}C$
T_{stg}	$T_{OPERATION} \leq T_{stg}$	-40 ... +125			$^{\circ}C$
V_{isol}	AC, 1 min.	4000			V

Characteristics		$T_{case} = 25^{\circ}C$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT					
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 12\text{ mA}$	4,5	5	6,5	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = V_{CES}$			0,3	mA
V_{CE0}		$T_j = 25^{\circ}C$	1		V
		$T_j = 125^{\circ}C$	0,9		V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25^{\circ}C$	3		$m\Omega$
		$T_j = 125^{\circ}C$	4,7		$m\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 300\text{ A}$, $V_{GE} = 15\text{ V}$	$T_j = 25^{\circ}C_{chiplev.}$	1,9		V
		$T_j = 125^{\circ}C_{chiplev.}$	2,3		V
C_{res}	$V_{CE} = 25$, $V_{GE} = 0\text{ V}$	27			nF
C_{oes}		2			nF
C_{res}		1,3			nF
Q_G	$V_{GE} = -8\text{ V} \dots +15\text{ V}$	2880			nC
$t_{d(on)}$	$R_{Gon} = 3\ \Omega$	$V_{CC} = 600\text{ V}$ $I_{Cnom} = 300\text{ A}$	185		ns
t_r			65		ns
E_{on}	$R_{Goff} = 3\ \Omega$	$T_j = 125^{\circ}C$	27		mJ
$t_{d(off)}$			635		ns
t_f			80		ns
E_{off}			33		mJ
$R_{th(j-c)}$	per IGBT	0,06			K/W



SPT IGBT Modules

SEMiX 553GB128D

Preliminary Data

Features

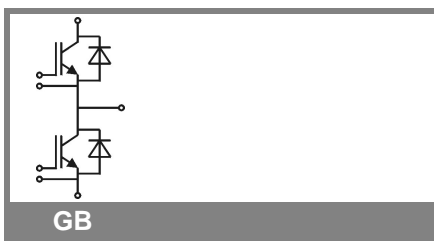
- Homogeneous Si
- SPT = Soft-Punch-Through technology
- $V_{CE(sat)}$ with positive temperature coefficient
- High short circuit capability

Typical Applications

- AC inverter drives
- UPS
- Electronic welders up to 20 kHz

Remarks

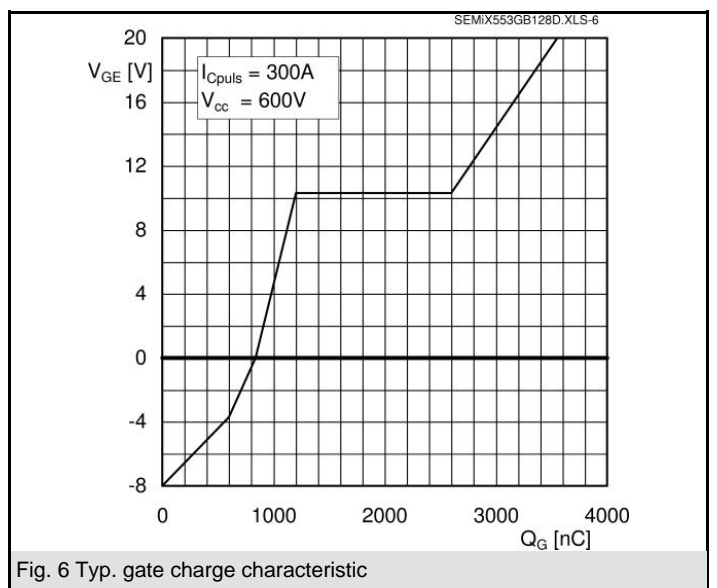
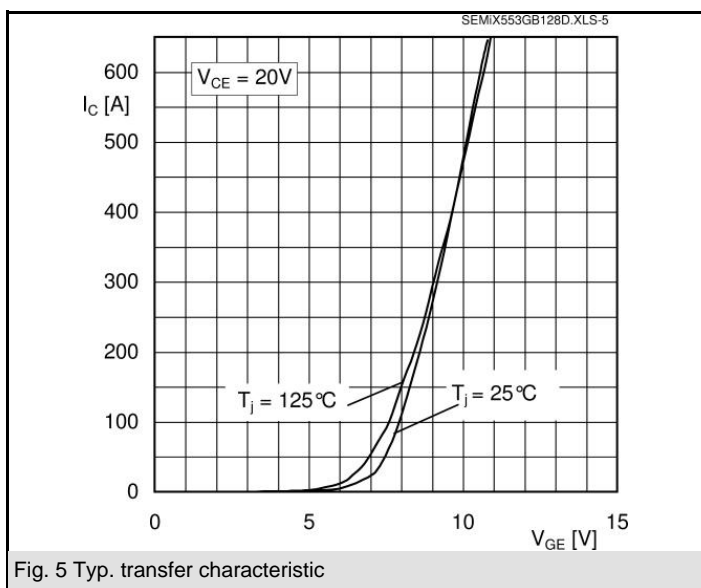
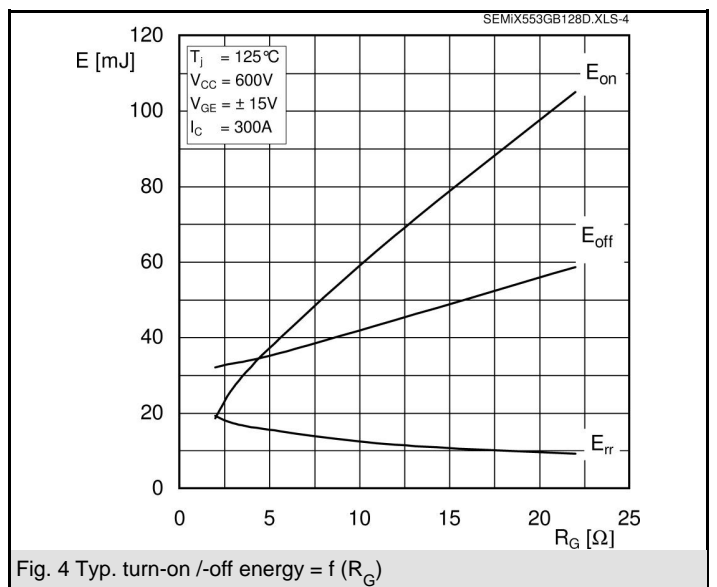
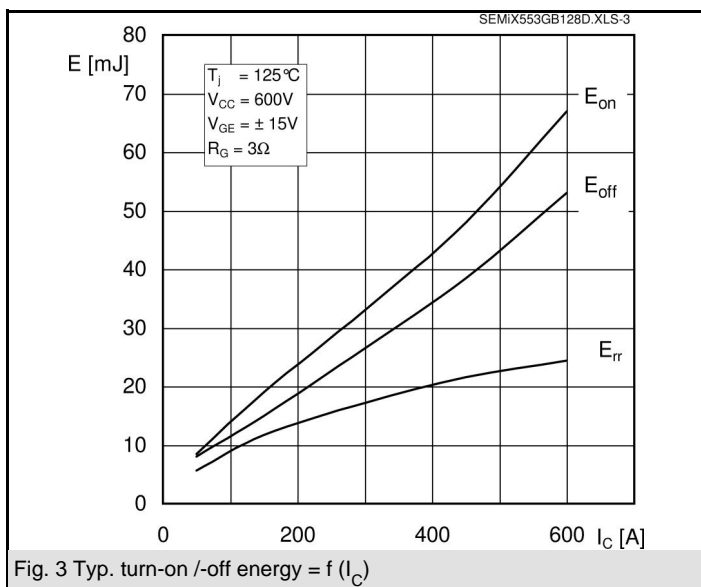
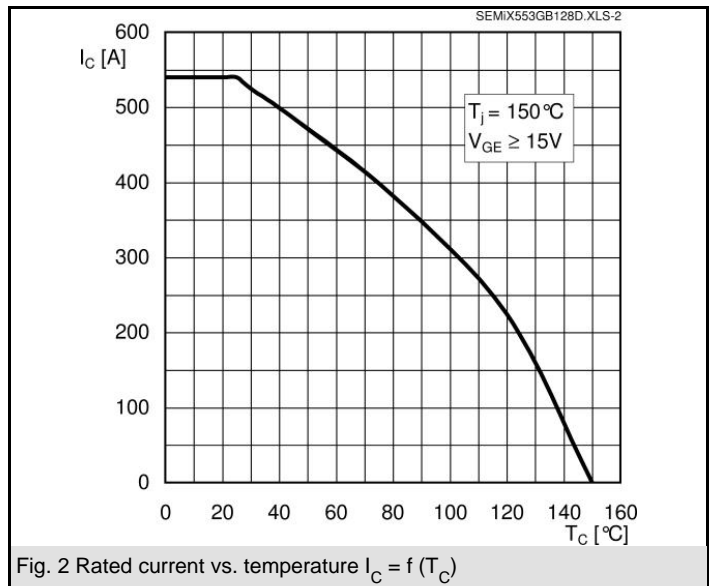
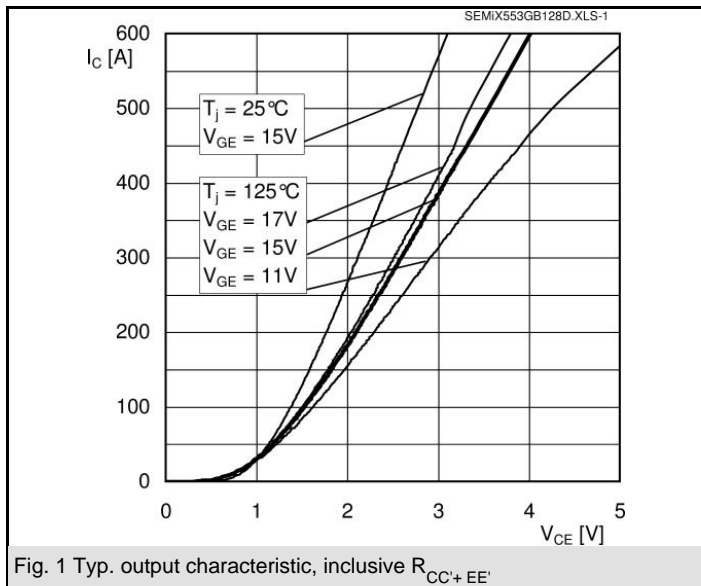
- Not for new design

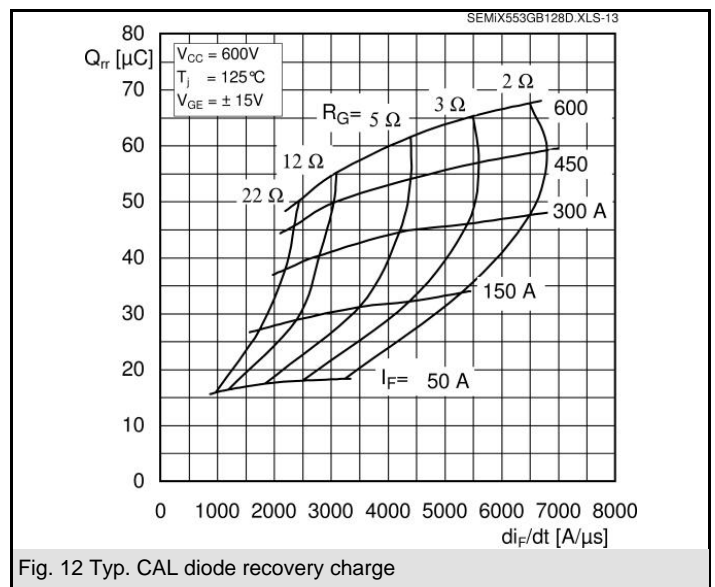
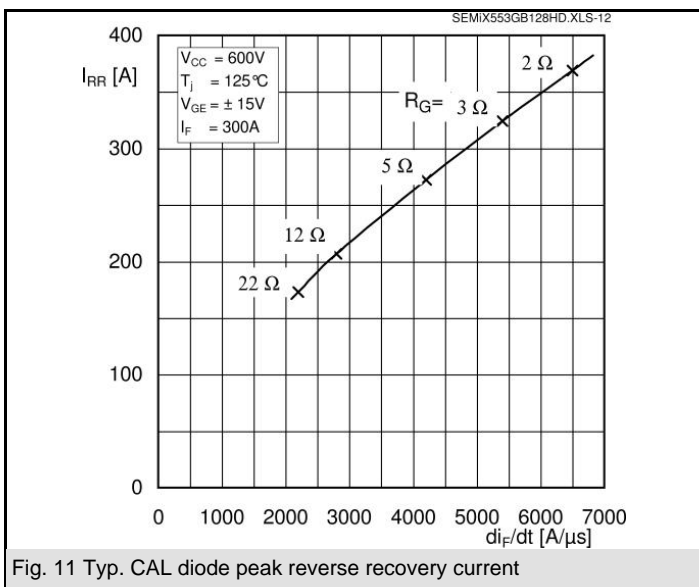
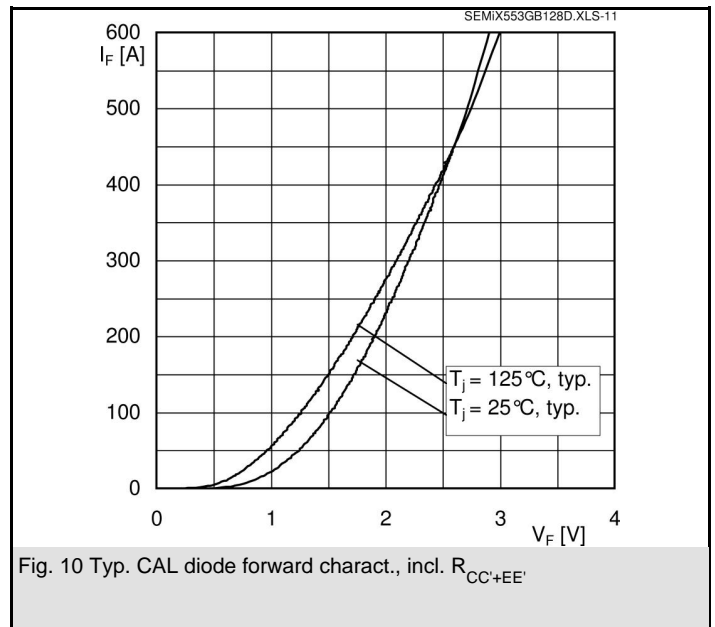
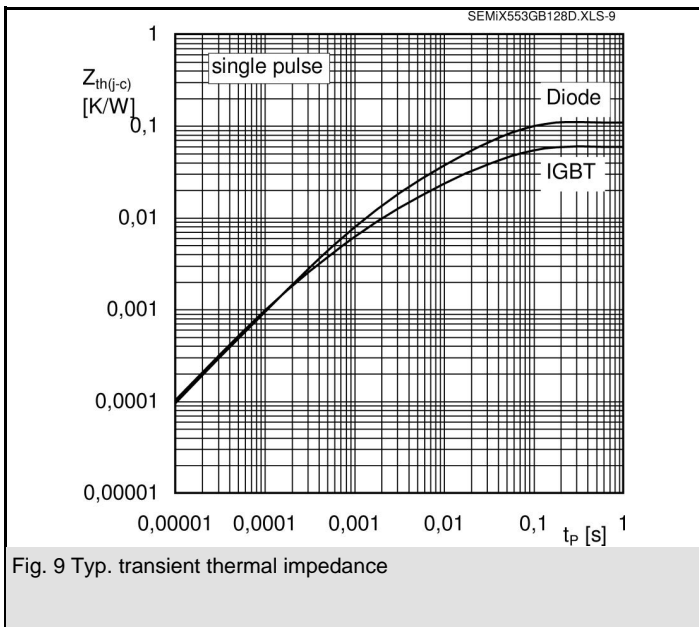
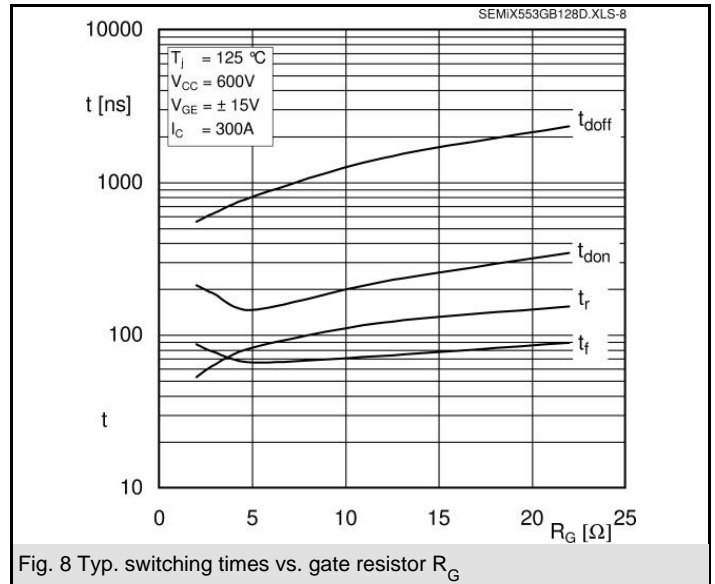
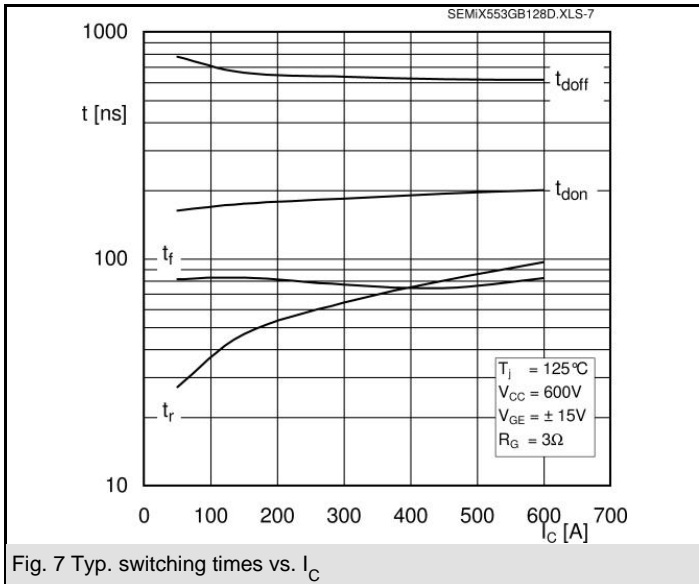


Characteristics		min.	typ.	max.	Units
Inverse Diode					
$V_F = V_{EC}$	$I_{Fnom} = 300\text{ A}; V_{GE} = 0\text{ V}$		2	2,5	V
	$T_j = 25\text{ °C}$				
	$T_j = 125\text{ °C}$		1,8	2,3	V
V_{F0}			1,1	1,45	V
	$T_j = 25\text{ °C}$				
	$T_j = 125\text{ °C}$			1,25	V
r_F			3	3,5	V
	$T_j = 25\text{ °C}$				
	$T_j = 125\text{ °C}$			3,5	V
I_{RRM}	$I_{Fnom} = 300\text{ A}$		324		A
Q_{rr}	$di/dt = 5400\text{ A}/\mu\text{s}$		46		μC
E_{off}	$V_{GE} = -15\text{ V}; V_{CC} = 600\text{ V}$		17		mJ
$R_{th(j-c)D}$	per diode			0,11	K/W
Module					
L_{CE}			20		nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25\text{ °C}$	0,7		m Ω
		$T_{case} = 125\text{ °C}$	1		m Ω
$R_{th(c-s)}$	per module		0,04		K/W
M_s	to heat sink (M5)		3	5	Nm
M_t	to terminals (M6)		2,5	5	Nm
w				300	g
Temperature sensor					
R_{100}	$T_c = 100\text{ °C}$ ($R_{25} = 5\text{ k}\Omega$)		0,493 \pm 5%		k Ω
$B_{100/125}$	$R(T) = R_{100} \exp[B_{100/125} (1/T - 1/T_{100})]$; $T[\text{K}]; B$		3550 \pm 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.



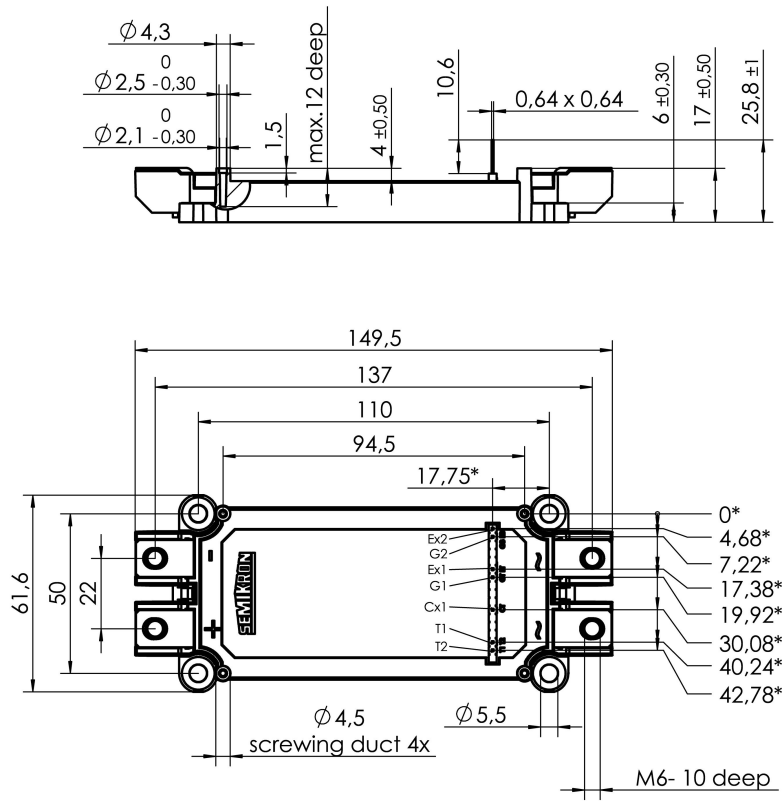


SEMiX 553GB128D

UL Recognized
File no. E 63 532

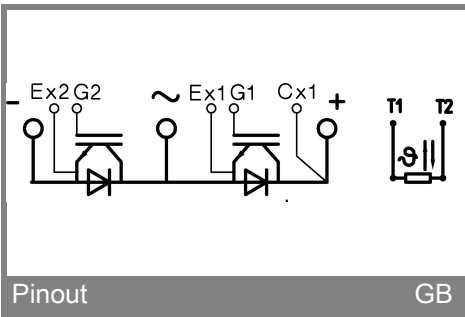
Dimensions in mm

case: SEMiX 3



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

Case SEMiX 3



Pinout

GB