

# SEMiX 252GB126HDs



**SEMiX<sup>®</sup> 2s**

## Trench IGBT Modules

### SEMiX 252GB126HDs

Preliminary Data

#### Features

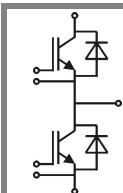
- Homogeneous Si
- Trench = Trenchgate technology
- $V_{CE(sat)}$  with positive temperature coefficient
- High short circuit capability

#### Typical Applications

- AC inverter drives
- UPS
- Electronic Welding

#### Remarks

- Case temperatur limited to  $T_C=125^\circ\text{C}$  max.



**GB**

Absolute Maximum Ratings		$T_{case} = 25^\circ\text{C}$ , unless otherwise specified			
Symbol	Conditions	Values			Units
<b>IGBT</b>					
$V_{CES}$	$T_j = 25^\circ\text{C}$	1200			V
$I_C$	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	270		A
		$T_c = 80^\circ\text{C}$	200		A
$I_{CRM}$	$I_{CRM} = 2 \times I_{Cnom}$	400			A
$V_{GES}$		$\pm 20$			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			$\mu\text{s}$
<b>Inverse Diode</b>					
$I_F$	$T_j = 150^\circ\text{C}$	$T_c = 25^\circ\text{C}$	210		A
		$T_c = 80^\circ\text{C}$	160		A
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}$	400			A
$I_{FSM}$	$t_p = 10\text{ ms}; \sin.$	$T_j = 25^\circ\text{C}$	1000		A
<b>Freewheeling Diode</b>					
$I_F$	$T_j = ^\circ\text{C}$	$T_{case} = ^\circ\text{C}$	10		A
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}, t_p = \text{ms}$		A		
<b>Module</b>					
$I_{t(RMS)}$				600	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	
<b>IGBT</b>						
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 6,4\text{ mA}$	5	5,8	6,5	V	
$I_{CES}$	$V_{GE} = 0\text{ V}, V_{CE} = V_{CES}$			1	mA	
$V_{CE0}$				1	1,2	V
				0,9	1,1	V
$r_{CE}$	$V_{GE} = 15\text{ V}$			4,7	6,3	m $\Omega$
				7,3	9	m $\Omega$
$V_{CE(sat)}$	$I_{Cnom} = 150\text{ A}, V_{GE} = 15\text{ V}$	$T_j = 25^\circ\text{C}_{chiplev.}$		1,7	2,15	V
		$T_j = 125^\circ\text{C}_{chiplev.}$		2	2,45	V
$C_{ies}$	$V_{CE} = 25, V_{GE} = 0\text{ V}$			10,7	nF	
$C_{oes}$				0,6	nF	
$C_{res}$				0,5	nF	
$Q_G$	$V_{GE} = -8 \dots +15\text{V}$	1050			nC	
$t_{d(on)}$	$R_{Gon} = 3\ \Omega$			300	ns	
$t_r$				45	ns	
$E_{on}$	$R_{Goff} = 3\ \Omega$	$V_{CC} = 600\text{V}$ $I_{Cnom} = 150\text{A}$		20	mJ	
$t_{d(off)}$		$T_j = 125^\circ\text{C}$		570	ns	
$t_f$				110	ns	
$E_{off}$			21	mJ		
$R_{th(j-c)}$	per IGBT			0,15	K/W	

# SEMiX 252GB126HDs



SEMiX® 2s

## Trench IGBT Modules

### SEMiX 252GB126HDs

Preliminary Data

#### Features

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

#### Typical Applications

- AC inverter drives
- UPS
- Electronic Welding

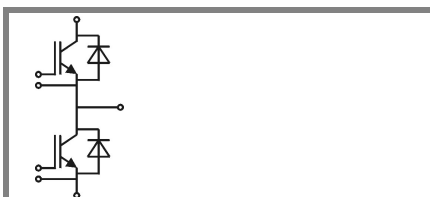
#### Remarks

- Case temperature limited to  $T_C = 125^\circ\text{C}$  max.

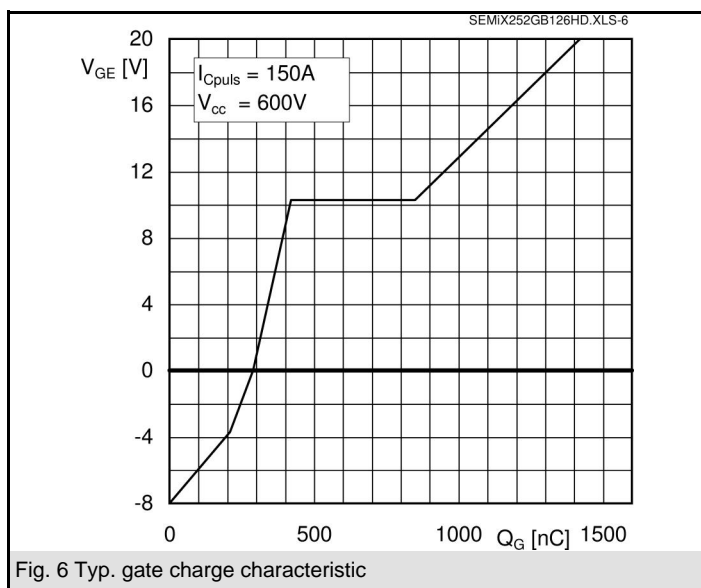
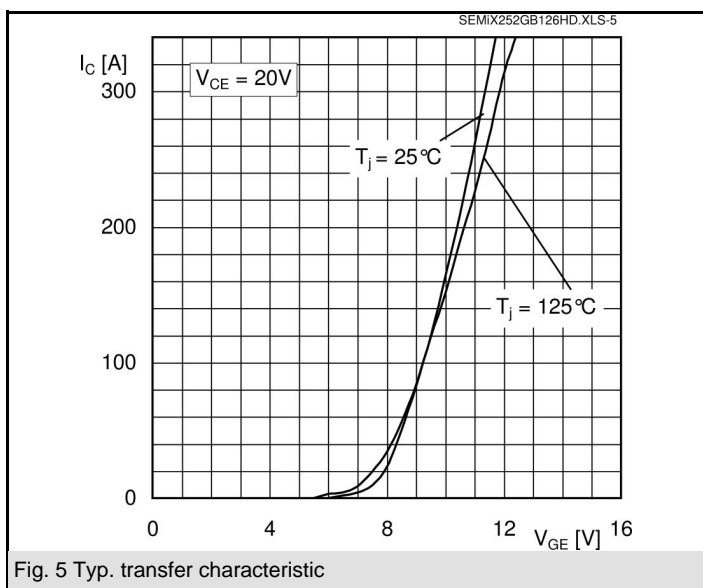
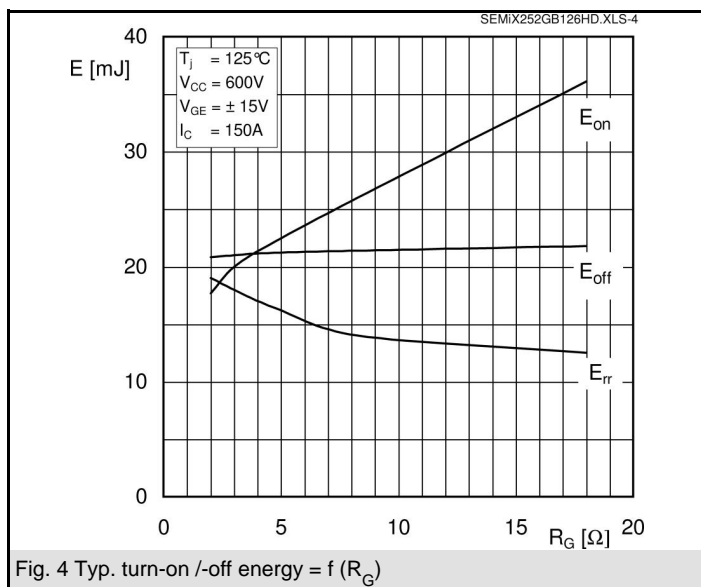
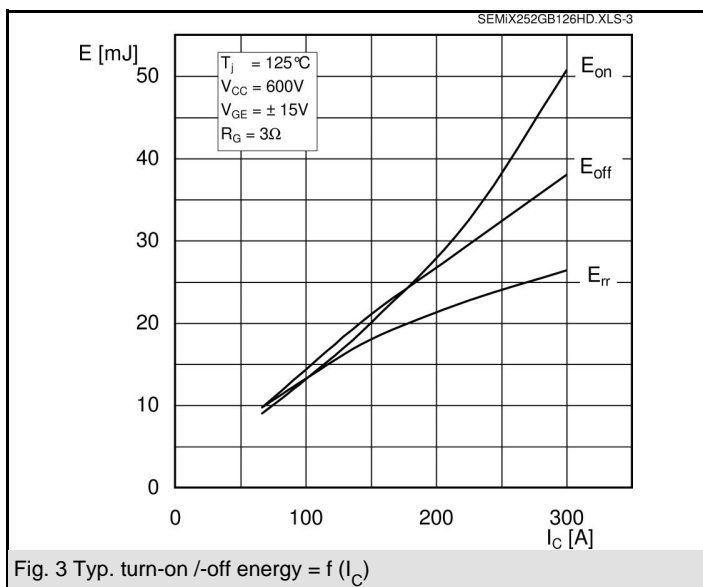
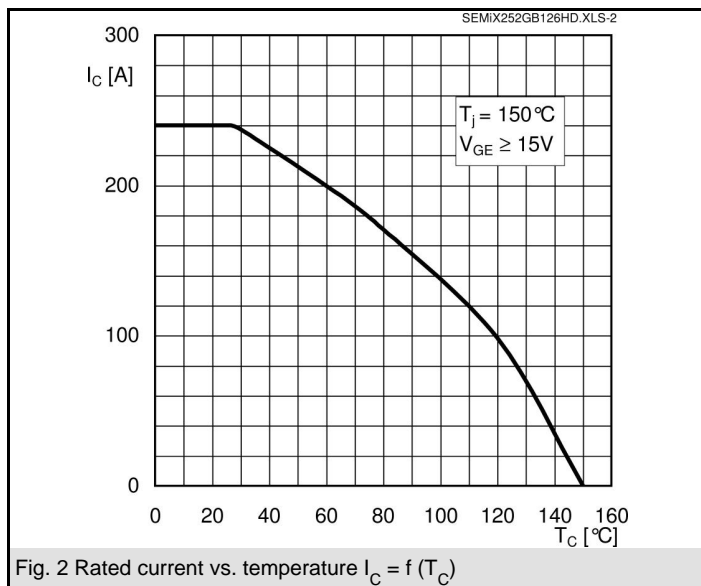
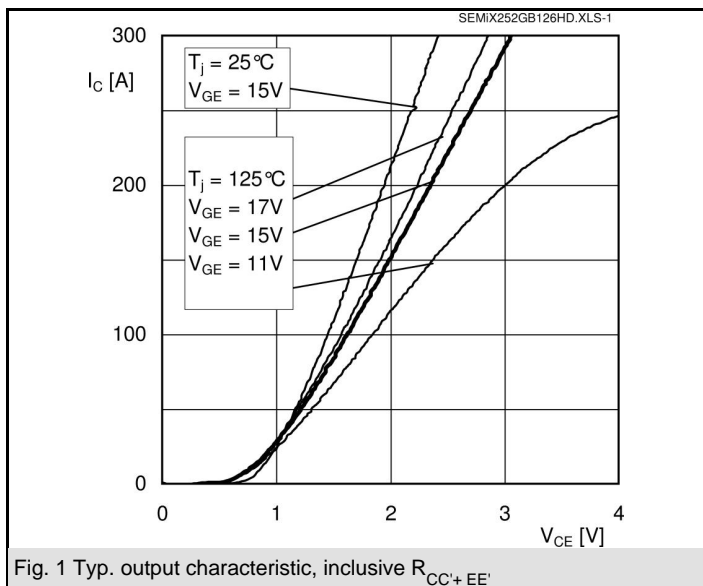
Characteristics		min.	typ.	max.	Units
<b>Inverse Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = 150\text{ A}; V_{GE} = 0\text{ V}$		1,6	1,8	V
			1,6	1,8	V
$V_{F0}$			1	1,1	V
			0,8	0,9	V
$r_F$			4	4,7	mΩ
			5,3	6	mΩ
$I_{RRM}$	$I_{Fnom} = 150\text{ A}$		265		A
$Q_{rr}$	$di/dt = 4600\text{ A}/\mu\text{s}$		43		μC
$E_{off}$	$V_{GE} = -15\text{ V}; V_{CC} = 600\text{ V}$		18		mJ
$R_{th(j-c)D}$	per diode			0,3	K/W
<b>Freewheeling Diode</b>					
$V_F = V_{EC}$	$I_{Fnom} = \text{A}; V_{GE} = \text{V}$				V
$V_{F0}$					V
$r_F$					V
$I_{RRM}$	$I_{Fnom} = \text{A}$				A
$Q_{rr}$					μC
$E_{off}$	$V_{GE} = 0\text{ V}; V_{CC} = 300\text{ V}$				mJ
	per diode				K/W
<b>Module</b>					
$L_{CE}$			18		nH
$R_{CC'+EE'}$	res., terminal-chip	$T_{case} = 25^\circ\text{C}$	0,7		mΩ
		$T_{case} = 125^\circ\text{C}$	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			290	250	g
<b>Temperature sensor</b>					
$R_{100}$	$T_C = 100^\circ\text{C}$ ( $R_{25} = 5\text{ k}\Omega$ )		0,493±5%		kΩ
$B_{100/125}$	$R(T) = R_{100} \exp[B_{100/125} (1/T - 1/T_{100})]$ ; $T[\text{K}]; B$		3550±2%		K

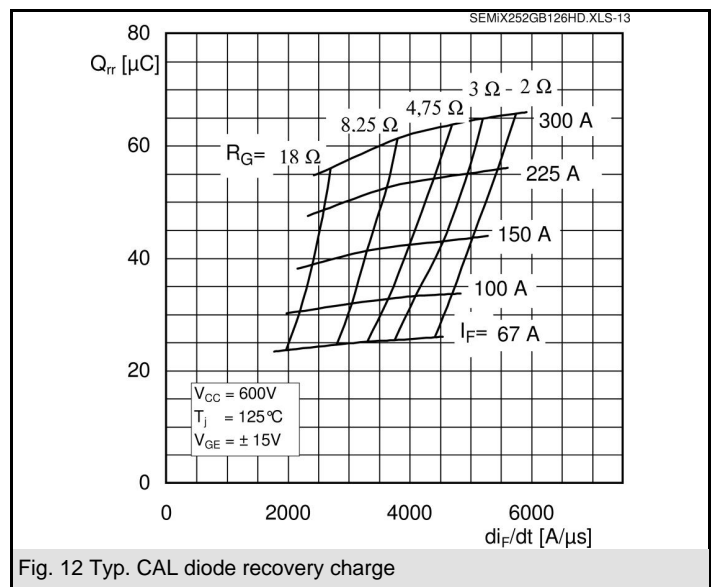
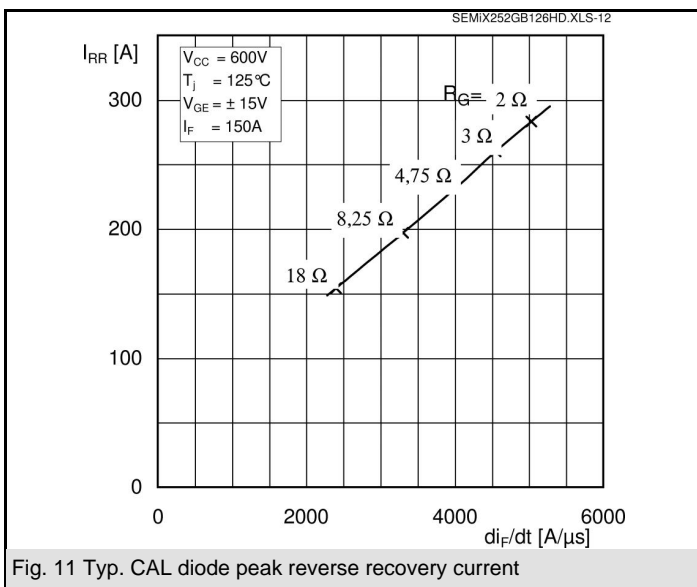
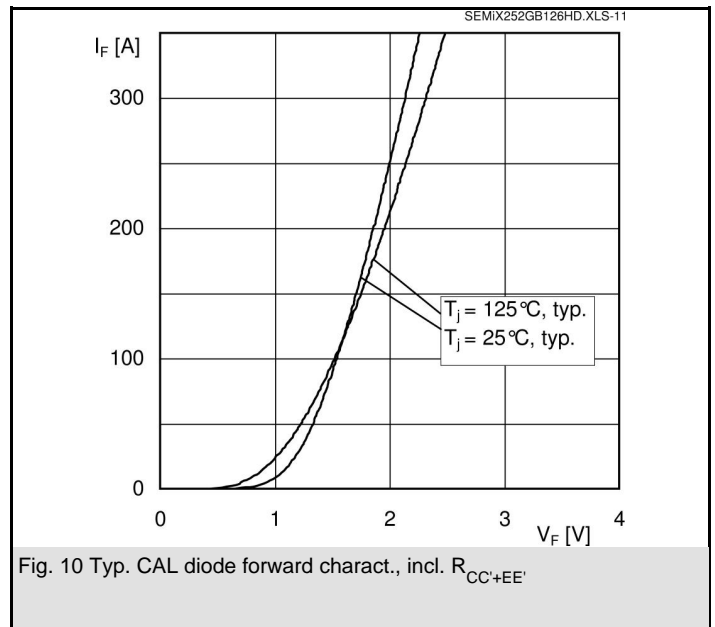
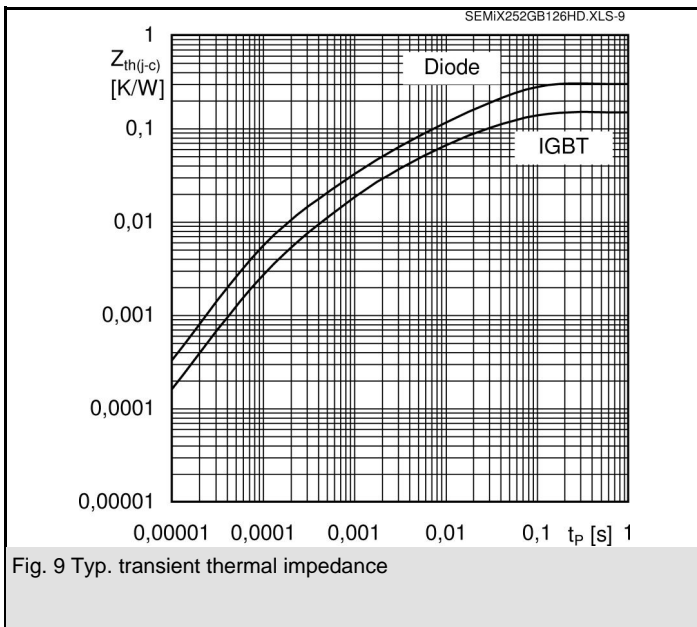
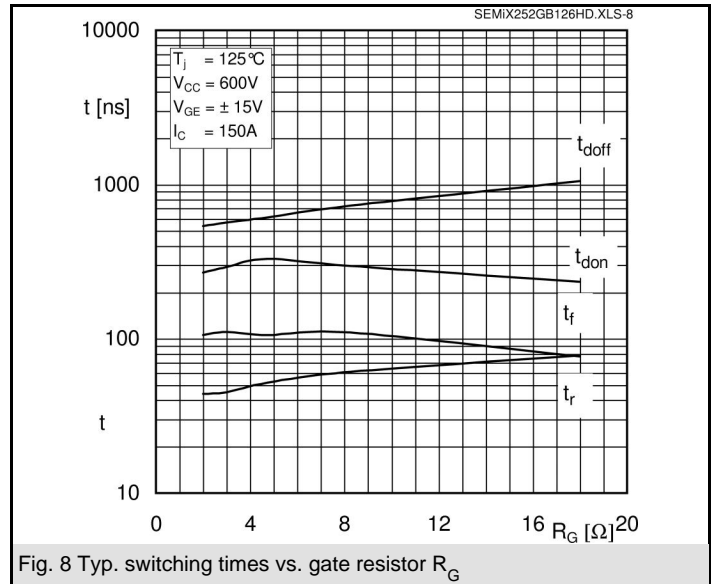
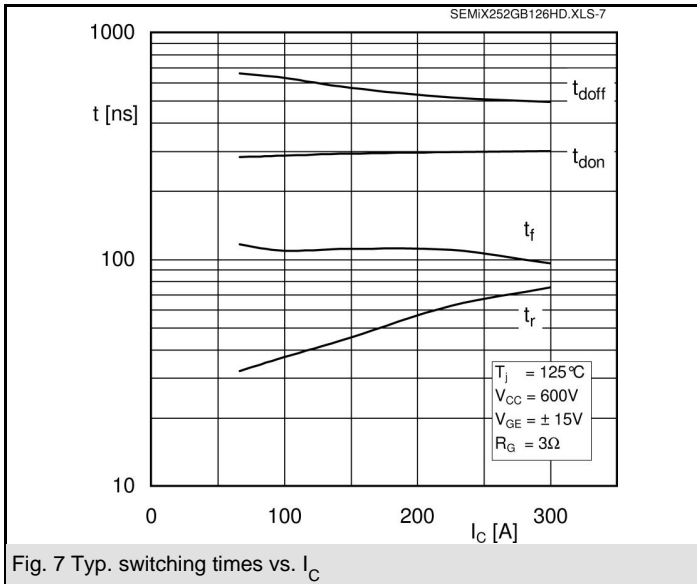
This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.



GB

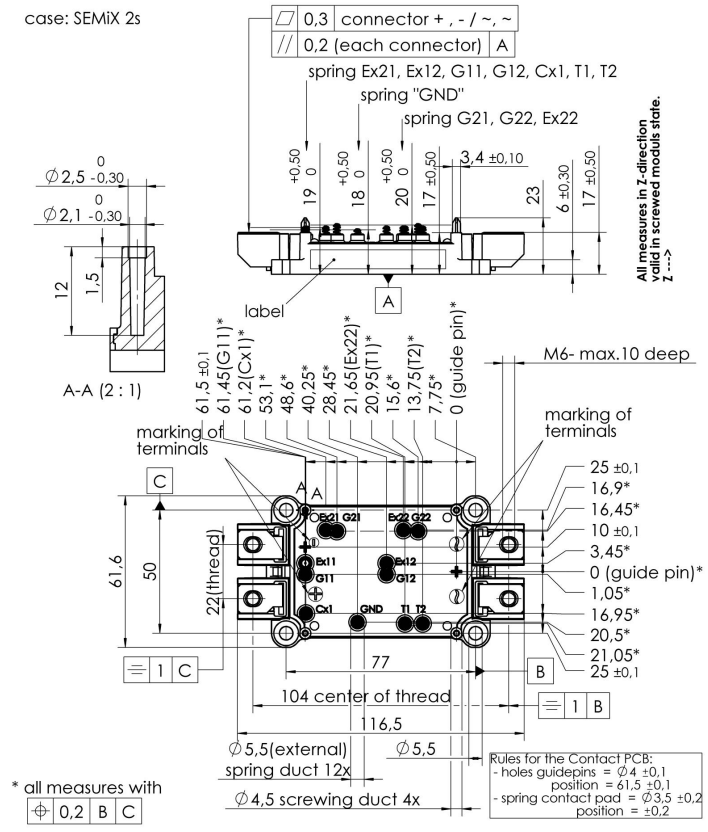




# SEMiX 252GB126HDs

UL Recognized  
File no. E 63 532

Dimensions in mm



Case SEMiX 2s

