



SEMiX® 3p

## SEMiX443KD22p

### Features

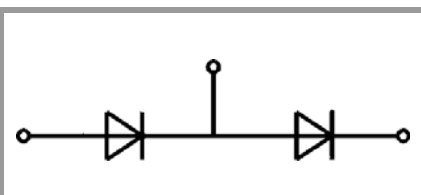
- Rectifier PEP technology for enhanced power and environmental robustness
- $T_{jmax} = 150^{\circ}\text{C}$
- NTC temperature sensor
- Press-fit pins as auxiliary contacts
- Terminal height 17 mm
- UL recognised file no. E63532

### Typical Applications\*

- Input Bridge Rectifier for AC/DC motor control
- Power supply

### Remarks

- Product reliability results are valid for  $T_j=150^{\circ}\text{C}$
- $V_{isol}$  between temperature sensor and power section is only 2500V
- For storage and case temperature with TIM see document "TP(\*) SEMiX 3p"



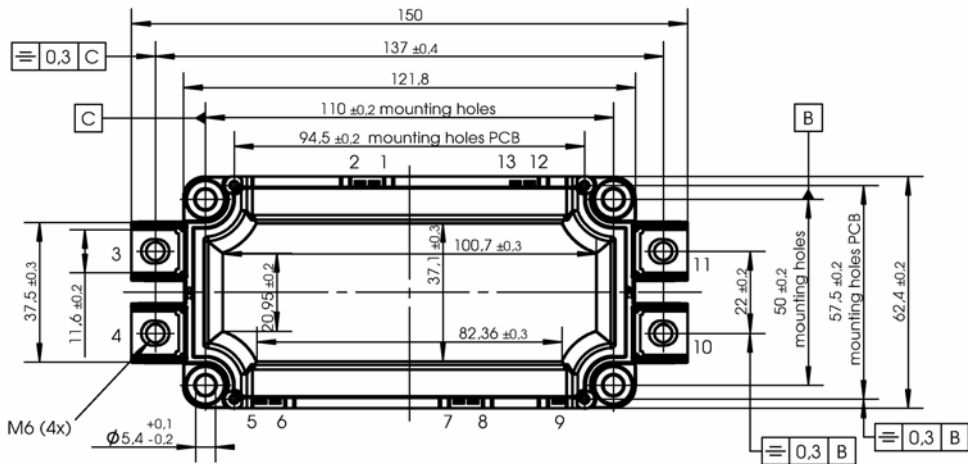
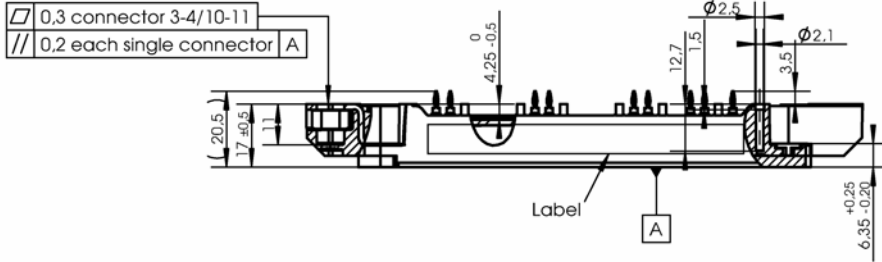
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Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
<b>Rectifier Diode</b>				
$I_{FAV}$	$T_j = 150^{\circ}\text{C}$ sin. 180	$T_c = 85^{\circ}\text{C}$	580	A
		$T_c = 100^{\circ}\text{C}$	476	A
$I_{FSM}$	10 ms	$T_j = 25^{\circ}\text{C}$	10000	A
		$T_j = 150^{\circ}\text{C}$	8200	A
$i^2t$	10 ms	$T_j = 25^{\circ}\text{C}$	500000	$\text{A}^2\text{s}$
		$T_j = 150^{\circ}\text{C}$	336200	$\text{A}^2\text{s}$
$V_{RSM}$			2300	V
$V_{RRM}$			2200	V
$T_j$			-40 ... 150	$^{\circ}\text{C}$
<b>Module</b>				
$T_{stg}$			-40 ... 125	$^{\circ}\text{C}$
$V_{isol}$	AC sinus 50Hz	1 min	4000	V
		1 s	4800	V

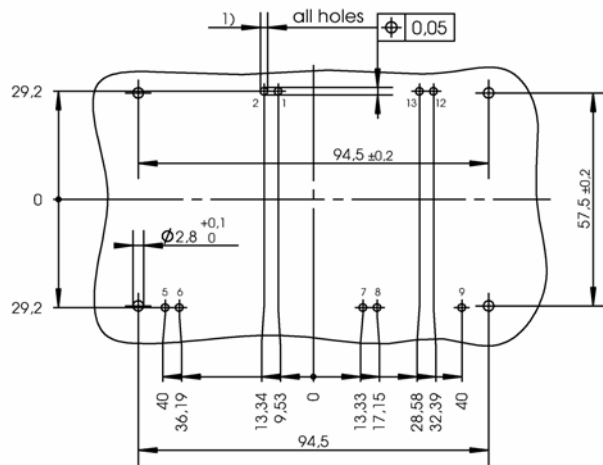
Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Diode</b>						
$V_F$	$I_F = 1812\text{ A}$ chipelevel	$T_j = 25^{\circ}\text{C}$		1.20	1.37	V
		$T_j = 125^{\circ}\text{C}$		1.17	1.36	V
$V_{(TO)}$		$T_j = 25^{\circ}\text{C}$		0.90	0.97	V
		$T_j = 125^{\circ}\text{C}$		0.78	0.83	V
$r_T$	chipelevel	$T_j = 25^{\circ}\text{C}$		0.17	0.22	$\text{m}\Omega$
		$T_j = 125^{\circ}\text{C}$		0.22	0.29	$\text{m}\Omega$
$I_{RD}$	$T_j = 125^{\circ}\text{C}$ , $V_{RD} = V_{RRM}$				4.6	mA
$R_{th(j-c)}$	sin. 180	per diode			0.09	K/W
$R_{th(c-s)}$	per Diode ( $\lambda_{grease}=0.81\text{ W}/(\text{m}^{\circ}\text{K})$ )			0.034		K/W
$R_{th(c-s)}$	per Diode, pre-applied phase change material			0.017		K/W
<b>Module</b>						
$R_{CC+EE}$	measured per switch	$T_c = 25^{\circ}\text{C}$		0.4		$\text{m}\Omega$
		$T_c = 125^{\circ}\text{C}$		0.5		$\text{m}\Omega$
$R_{th(c-s)1}$	calculated without thermal coupling			0.017		K/W
$R_{th(c-s)2}$	including thermal coupling, $T_s$ underneath module ( $\lambda_{grease}=0.81\text{ W}/(\text{m}^{\circ}\text{K})$ )			0.024		K/W
$R_{th(c-s)2}$	including thermal coupling, $T_s$ underneath module, pre-applied phase change material			0.013		K/W
$M_s$	to heat sink (M5)		3		6	Nm
$M_t$	to terminals (M6)		3		6	Nm
$a$					5 * 9.81	$\text{m}/\text{s}^2$
$w$					360	g
<b>Temperature Sensor</b>						
$R_{100}$	$T_c=100^{\circ}\text{C}$ ( $R_{25}=5\text{ k}\Omega$ )			493 $\pm$ 5%		$\Omega$
$B_{100/125}$	$R(T)=R_{100}\exp[B_{100/125}(1/T-1/T_{100})]$ ; $T[\text{K}]$ ;			3550 $\pm$ 2%		K

# SEMiX443KD22p

Package outline



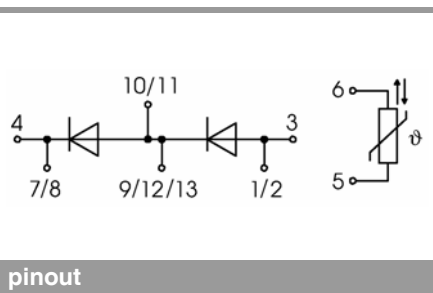
PCB drillhole pattern



Dimensions valid in mounted status

1) PCB hole specification see Mounting Instructions SEMiX press-fit

SEMiX 3p



pinout

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

## **\*IMPORTANT INFORMATION AND WARNINGS**

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