

SEMiX<sup>®</sup> 1s

## Rectifier Diode Module SEMiX191KD16s

### Features

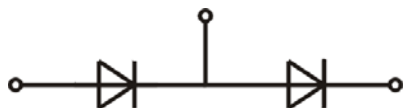
- Terminal height 17 mm
- Chips soldered directly to isolated substrate

### Typical Applications\*

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

Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
<b>Rectifier Diode</b>				
$I_{FAV}$	sin. 180°	$T_c = 85\text{ °C}$	190	A
		$T_c = 100\text{ °C}$	145	A
$I_{FSM}$	10 ms	$T_j = 25\text{ °C}$	6000	A
		$T_j = 130\text{ °C}$	5000	A
$i^2t$	10 ms	$T_j = 25\text{ °C}$	180000	A <sup>2</sup> s
		$T_j = 130\text{ °C}$	125000	A <sup>2</sup> s
$V_{RSM}$			1700	V
$V_{RRM}$			1600	V
$T_j$			-40 ... 130	°C
<b>Module</b>				
$T_{stg}$			-40 ... 125	°C
$V_{isol}$	AC sinus 50Hz	1 min	4000	V
		1 s	4800	V

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
<b>Diode</b>						
$V_F$	$T_j = 25\text{ °C}, I_F = 500\text{ A}$				1.5	V
$V_{(TO)}$	$T_j = 130\text{ °C}$				0.85	V
$r_T$	$T_j = 130\text{ °C}$				0.95	mΩ
$I_{RD}$	$T_j = 130\text{ °C}, V_{RD} = V_{RRM}$				12	mA
$R_{th(j-c)}$		per diode				K/W
						K/W
$R_{th(j-c)}$	sin. 180	per diode			0.18	K/W
						K/W
<b>Module</b>						
$R_{th(c-s)}$	per chip					K/W
	per module			0.075		K/W
$M_s$	to heat sink (M5)		3		5	Nm
$M_t$	to terminals (M6)		2.5		5	Nm
$a$					5 * 9,81	m/s <sup>2</sup>
$w$				145		g



KD

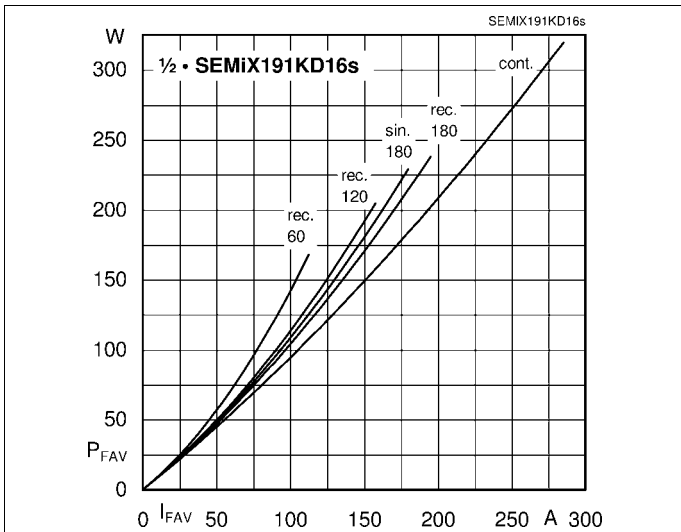


Fig. 1L: Power dissipation per thyristor/diode vs. on-state current

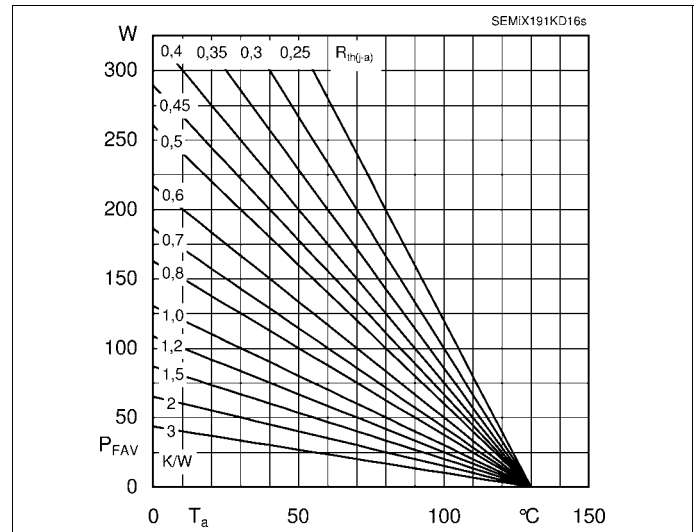


Fig. 1R: Power dissipation per thyristor/diode vs. ambient temperature

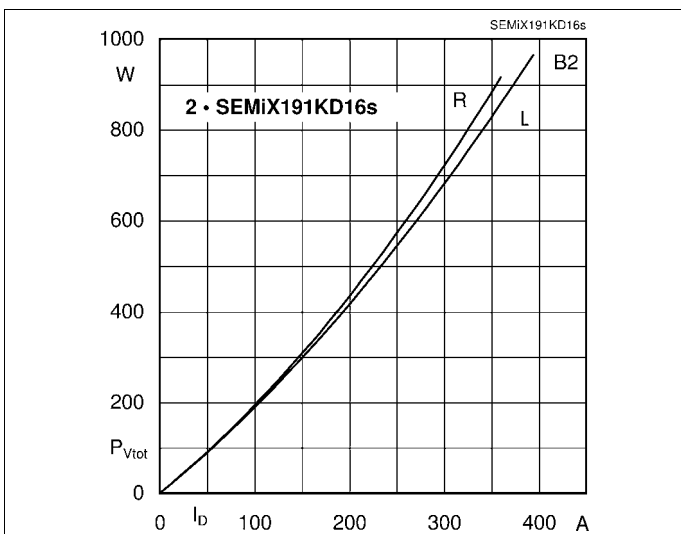
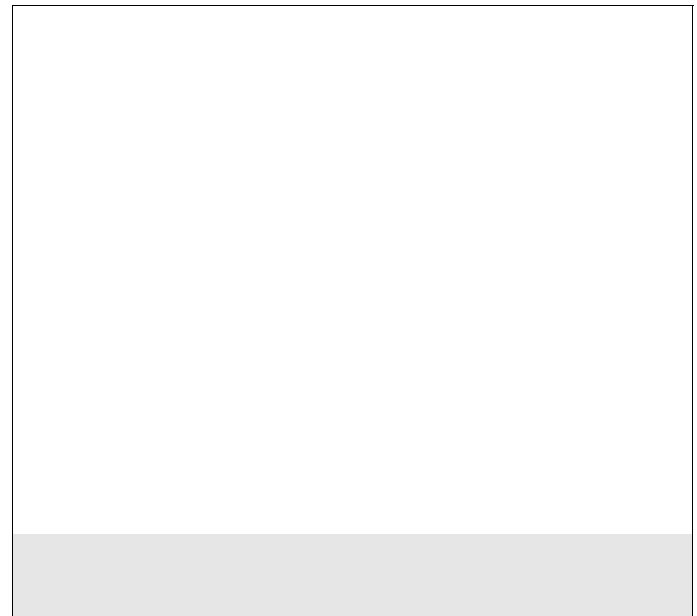
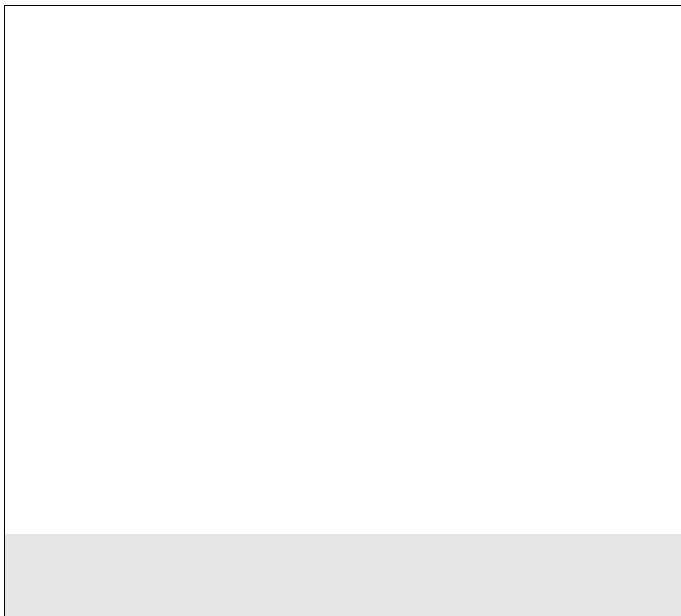


Fig. 3L: Power dissipation of two modules vs. direct current

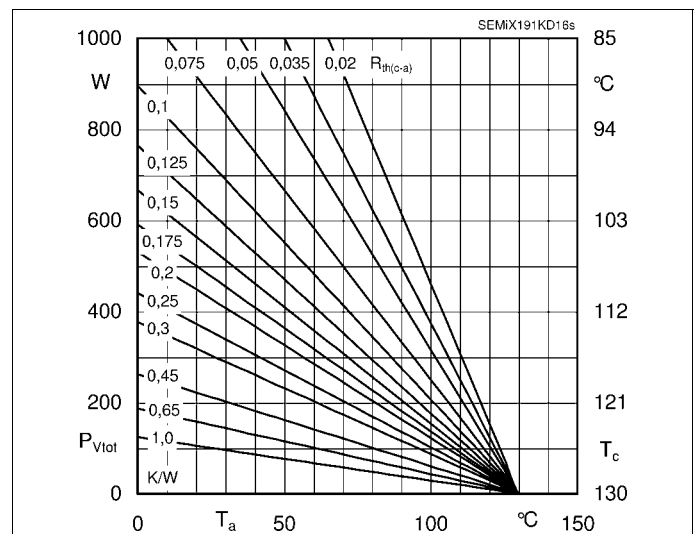


Fig. 3R: Power dissipation of two modules vs. case temperature

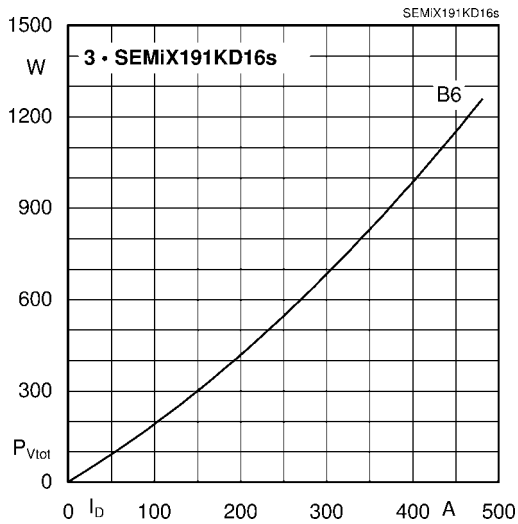


Fig. 4L: Power dissipation of three modules vs. direct current

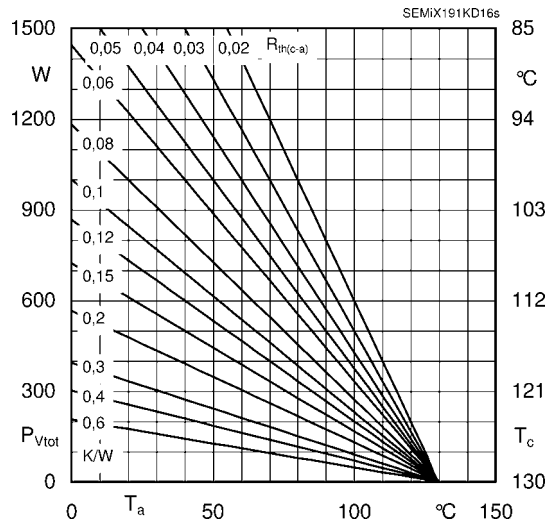


Fig. 4R: Power dissipation of three modules vs. case temperature

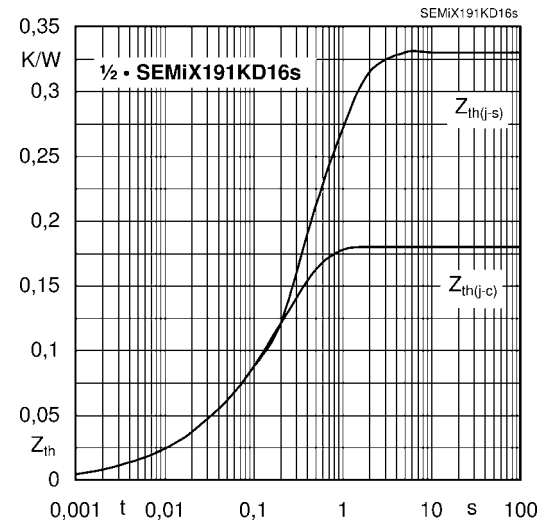


Fig. 6: Transient thermal impedance vs. time

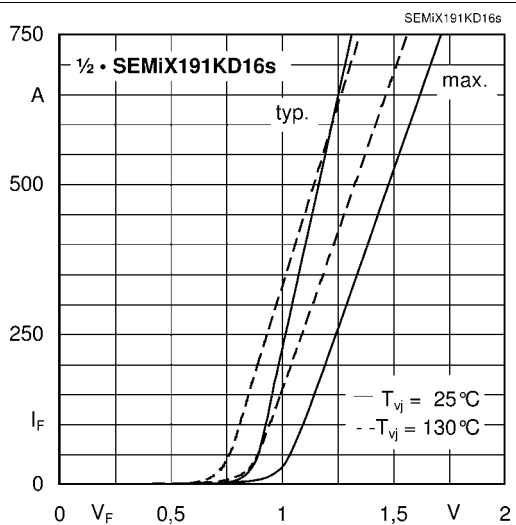


Fig. 7: On-state characteristics

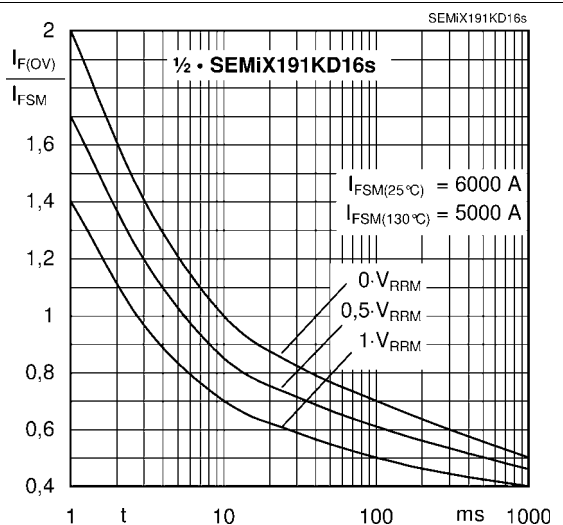
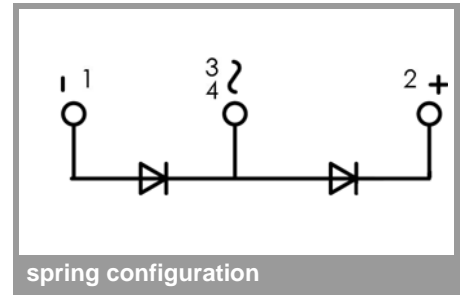
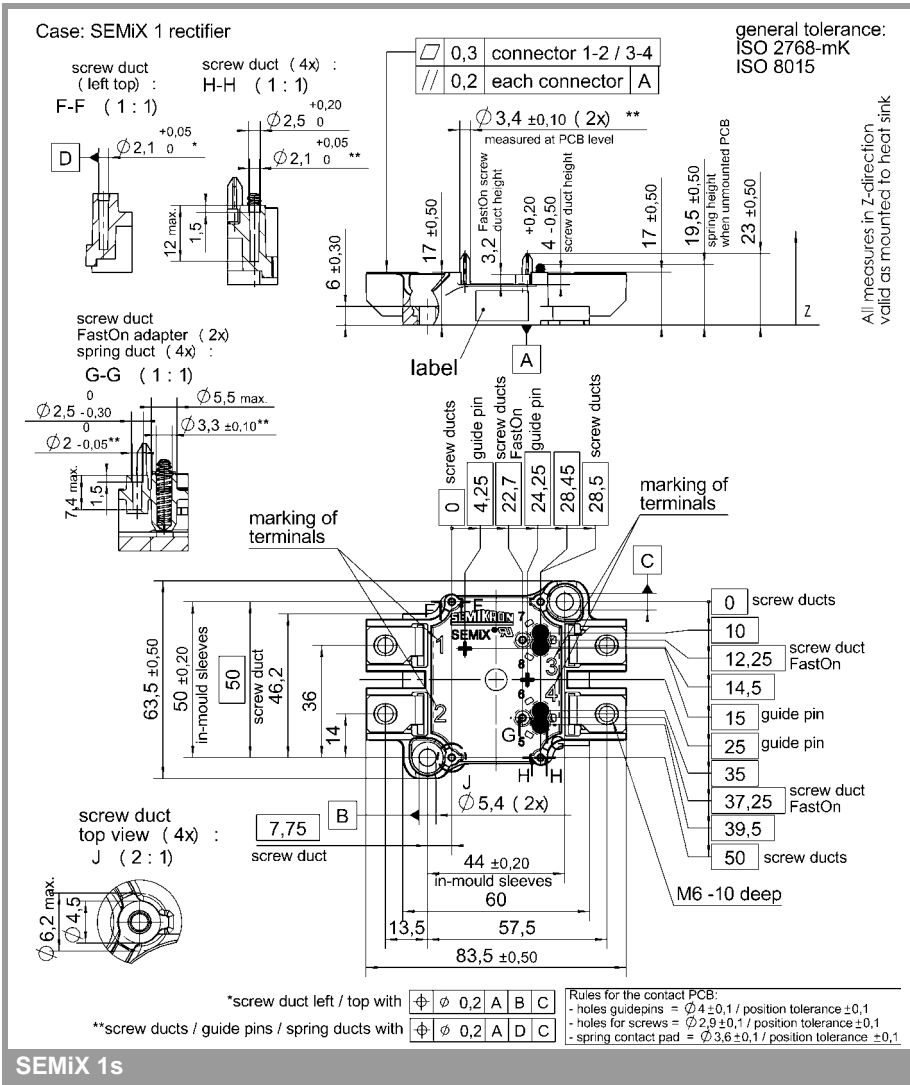


Fig. 8: Surge overload current vs. time

# SEMiX191KD16s



All measures in Z-direction valid as mounted to heat sink

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

\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.