



SEMiX® 2s

## Rectifier Diode Module SEMiX302KD16s

### Features

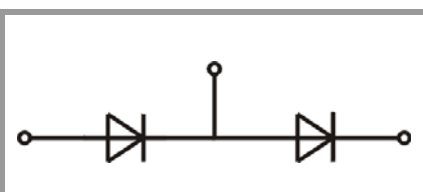
Terminal height 17 mm  
Chips soldered directly to isolated substrate

### 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°	$T_c = 85\text{ °C}$	300	A
		$T_c = 100\text{ °C}$	240	A
$I_{FSM}$	10 ms	$T_j = 25\text{ °C}$	8500	A
		$T_j = 130\text{ °C}$	7500	A
$i^2t$	10 ms	$T_j = 25\text{ °C}$	361000	A <sup>2</sup> s
		$T_j = 130\text{ °C}$	281000	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>						
$V_F$	$T_j = 25\text{ °C}, I_F = 900\text{ A}$				1.6	V
$V_{(TO)}$	$T_j = 130\text{ °C}$				0.85	V
$r_T$	$T_j = 130\text{ °C}$				1.1	mΩ
$I_{RD}$	$T_j = 130\text{ °C}, V_{RD} = V_{RRM}$				15	mA
$R_{th(j-c)}$		per diode				K/W
						K/W
$R_{th(j-c)}$	sin. 180	per diode			0.091	K/W
						K/W
<b>Module</b>						
$R_{th(c-s)}$	per chip					K/W
	per module			0.045		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>
$w$				250		g



KD

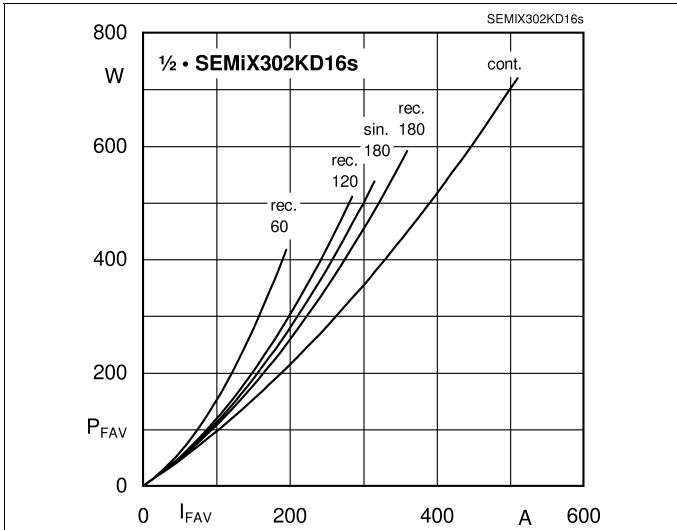


Fig. 1L: Power dissipation per thyristor/diode vs. on-state current

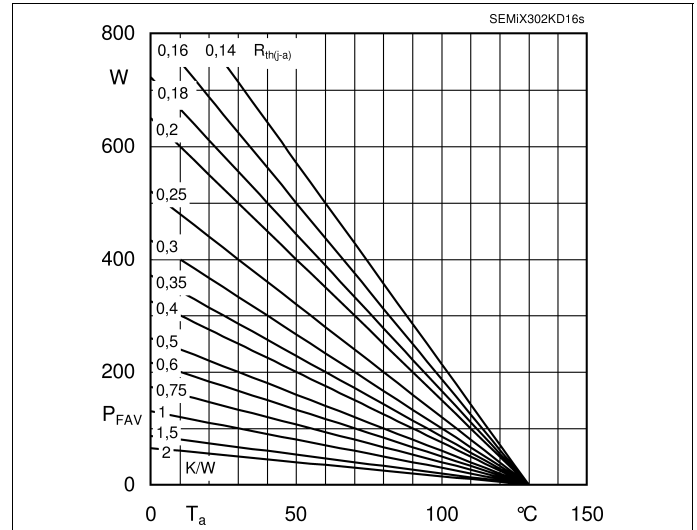


Fig. 1R: Power dissipation per thyristor/diode vs. ambient temperature

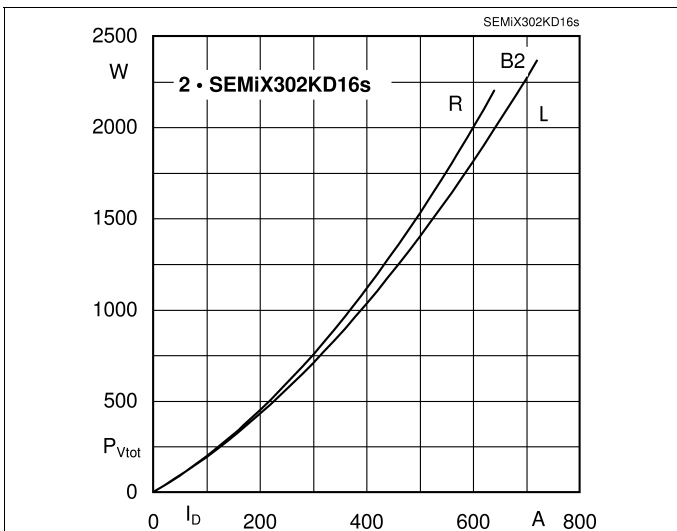


Fig. 3L: Power dissipation of two modules vs. direct current

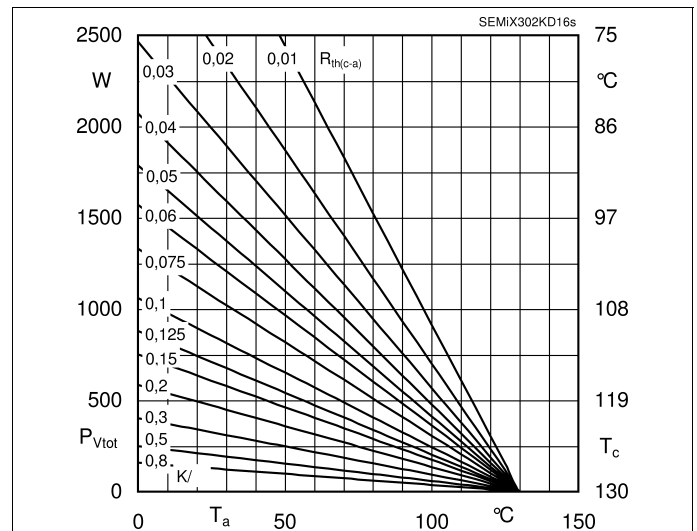


Fig. 3R: Power dissipation of two modules vs. case temperature

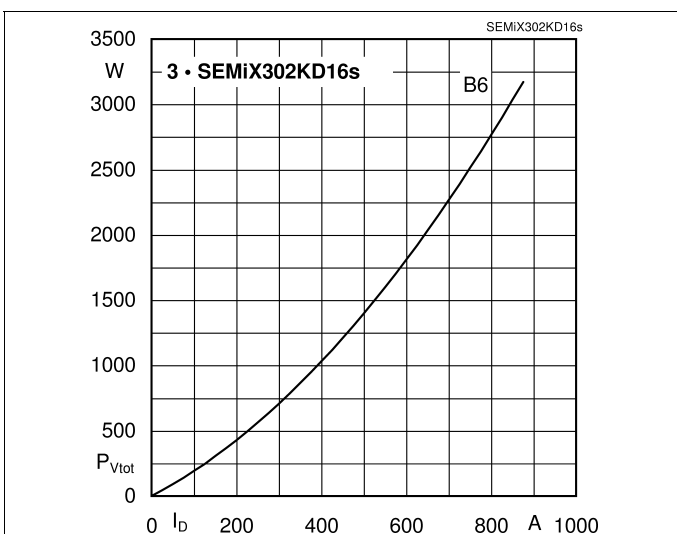


Fig. 4L: Power dissipation of three modules vs. direct current

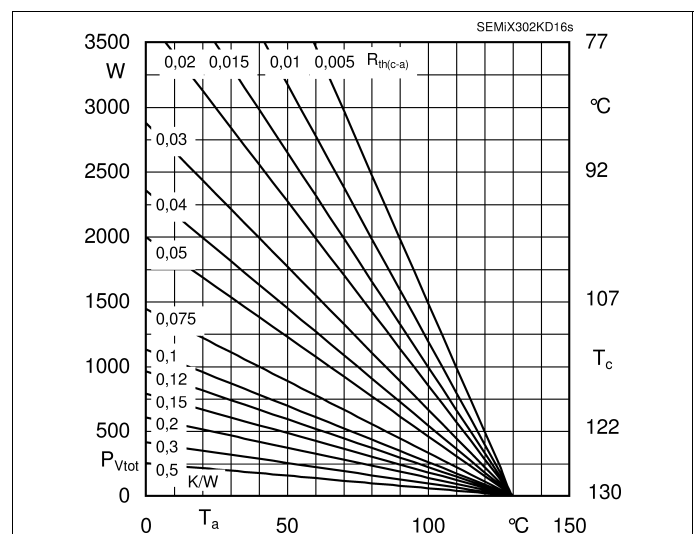


Fig. 4R: Power dissipation of three modules vs. case temperature

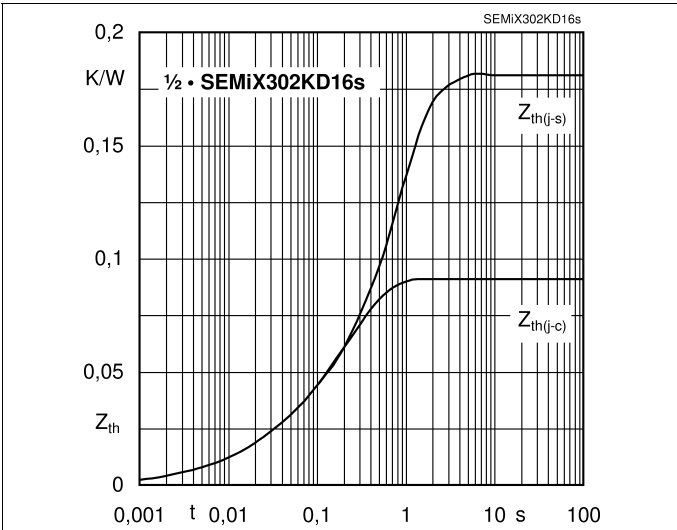


Fig. 6: Transient thermal impedance vs. time

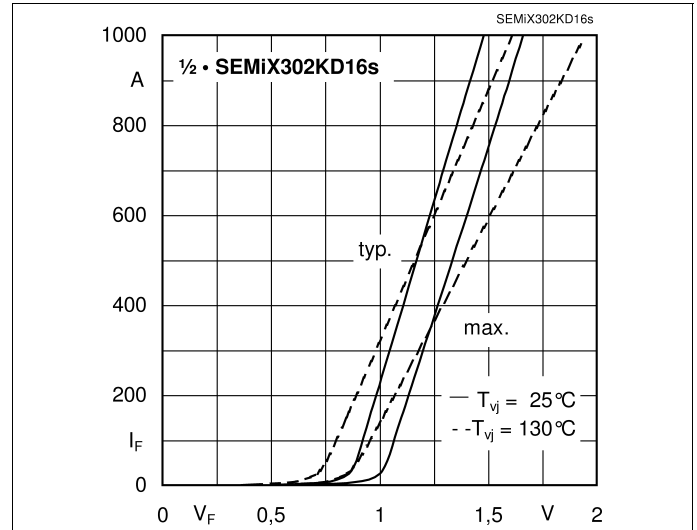


Fig. 7: On-state characteristics

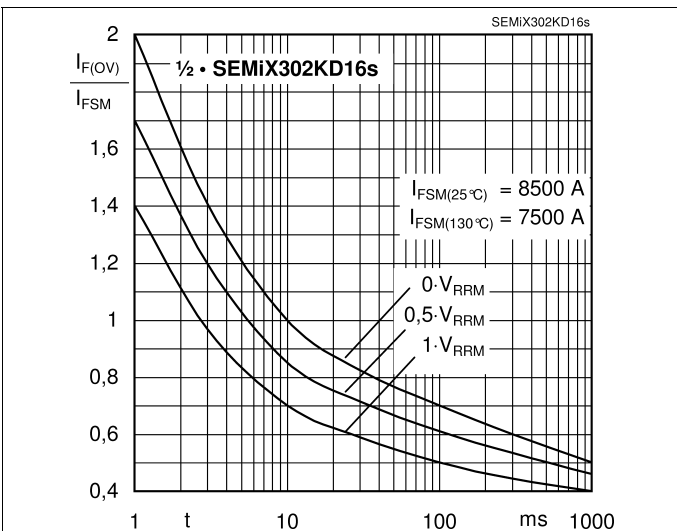


Fig. 8: Surge overload current vs. time

