



SEMiX® 13

Bridge Rectifier Module (halfcontrolled) SEMiX241DH16s

Features

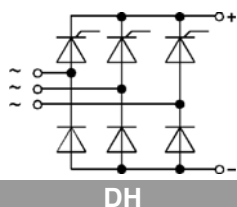
- Terminal height 17 mm
- Chips soldered directly to isolated substrate
- UL recognised file no. E63532

Typical Applications*

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

Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
Chip				
I _D	T _j = 130 °C	T _c = 85 °C	240	A
	sinus 180°	T _c = 100 °C	200	A
I _{TSM}	10 ms	T _j = 25 °C	2250	A
		T _j = 130 °C	1900	A
i ² t	10 ms	T _j = 25 °C	25300	A ² s
		T _j = 130 °C	18000	A ² s
V _{RSM}			1700	V
V _{RRM}			1600	V
V _{DRM}			1600	V
(di/dt) _{cr}	T _j = 130 °C		100	A/μs
(dv/dt) _{cr}	T _j = 130 °C		1000	V/μs
T _j			-40 ... 130	°C
Module				
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
Chip						
V _T	T _j = 25 °C, I _T = 300 A				1.9	V
V _{T(TO)}	T _j = 130 °C				0.85	V
r _T	T _j = 130 °C				4	mΩ
I _{DD} ;I _{RD}	T _j = 130 °C, V _{DD} = V _{DRM} ; V _{RD} = V _{RRM}				24	mA
t _{gd}	T _j = 25 °C, I _G = 1 A, di _G /dt = 1 A/μs			1		μs
t _{gr}	V _D = 0.67 * V _{DRM}			2		μs
t _q	T _j = 130 °C			150		μs
I _H	T _j = 25 °C			150	250	mA
I _L	T _j = 25 °C, R _G = 33 Ω			300	600	mA
V _{GT}	T _j = 25 °C, d.c.		3			V
I _{GT}	T _j = 25 °C, d.c.		150			mA
V _{GD}	T _j = 130 °C, d.c.				0.25	V
I _{GD}	T _j = 130 °C, d.c.				6	mA
R _{th(j-c)}	sin. 180°	per thyristor			0.32	K/W
		per diode			0.32	K/W
Module						
R _{th(c-s)}	per chip					K/W
	per module			0.04		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 ²
w				350		g



DH

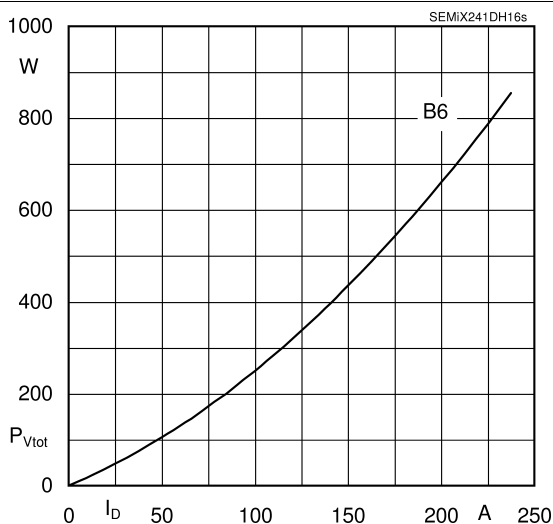


Fig. 4L: Power dissipation per module vs. direct current

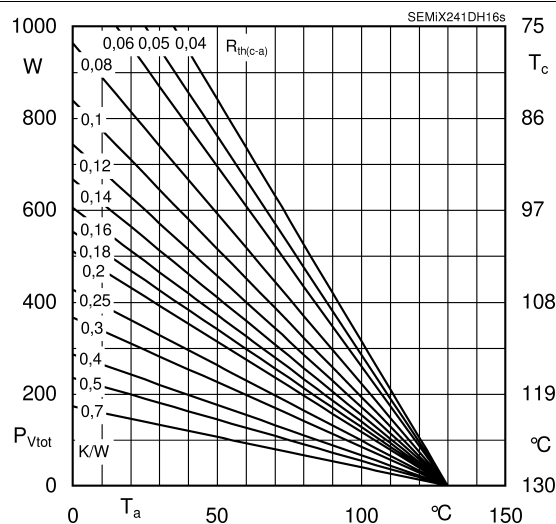


Fig. 4R: Power dissipation per module vs. case temperature

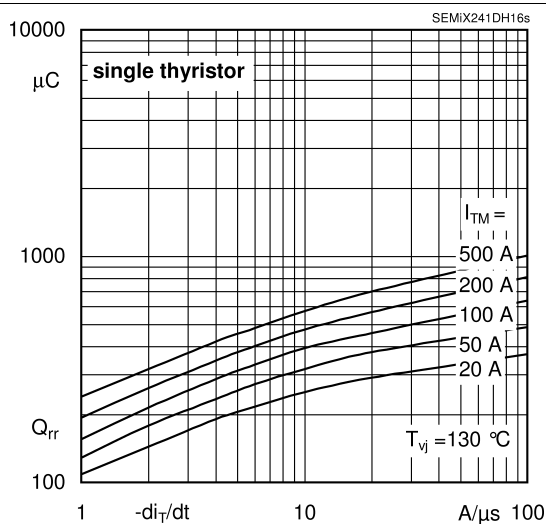


Fig. 5: Recovered charge vs. current decrease

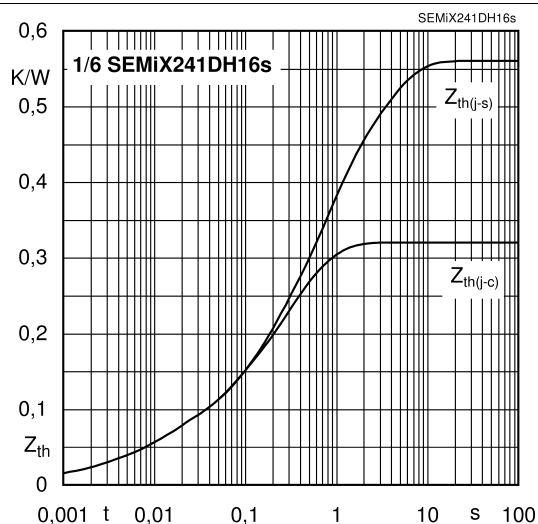


Fig. 6: Transient thermal impedance vs. time

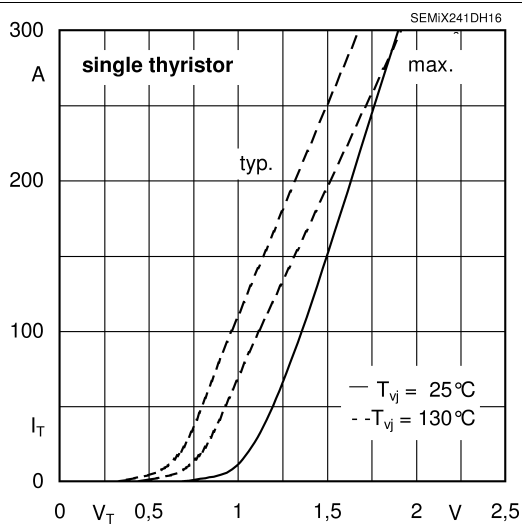


Fig. 7: On-state characteristics

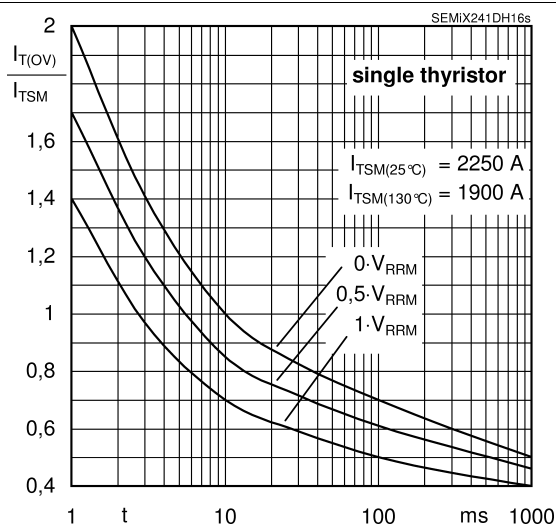


Fig. 8: Surge overload current vs. time

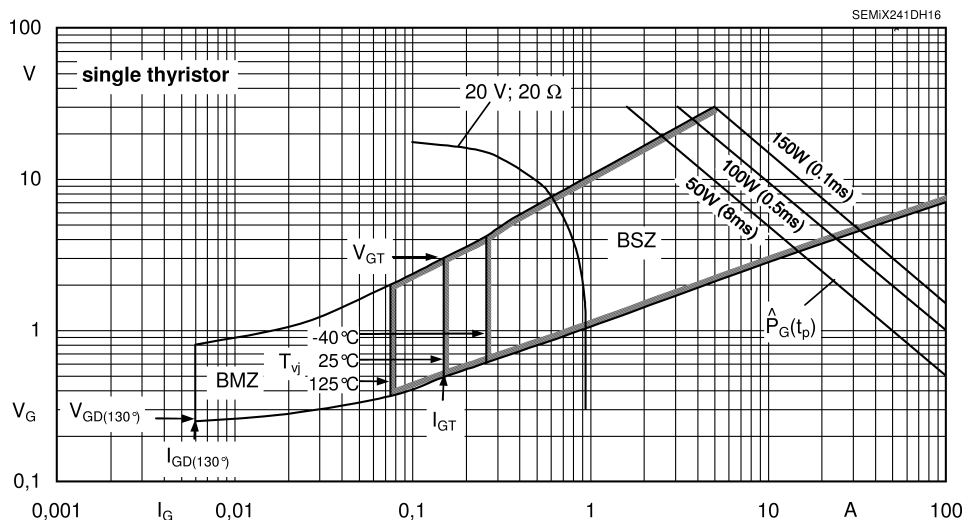
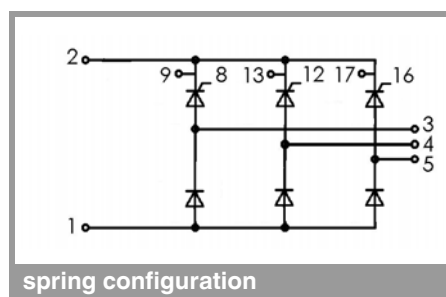
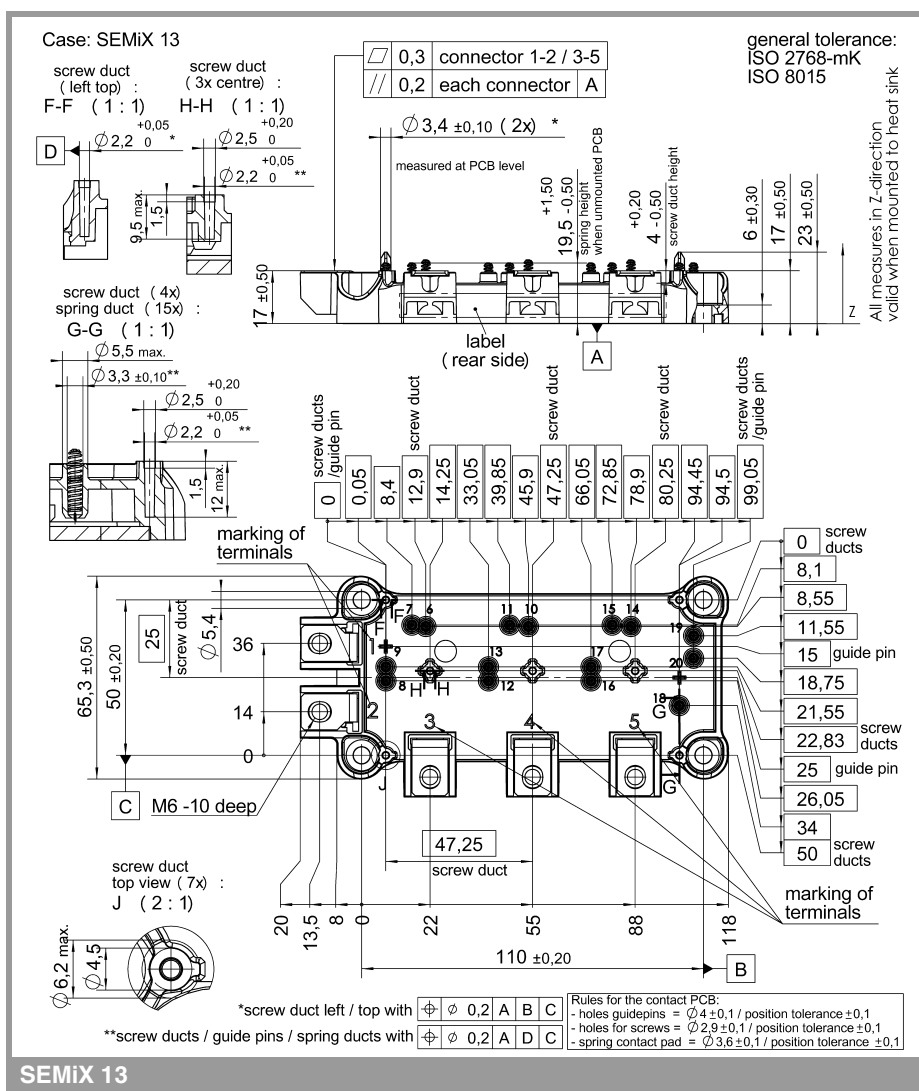


Fig. 9: Gate trigger characteristics



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 staff.