

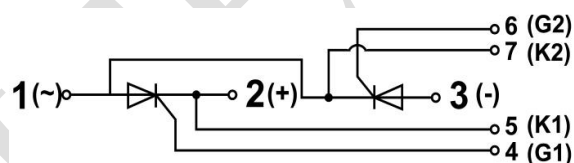


RS110HF180A9H

Thyristor Module

Features:

- Blocking Voltage:1800V
- Heat Transfer Through Aluminum Oxide DBC Ceramic
- Isolated Copper Baseplate
- High Surge Capability
- Mesa Glass Passivation Technology and Multilayer Metallization Technology
- Compliant to RoHS



Applications:

- Power Converters
- Battery Charges
- UPS
- Reactive Power Compensation
- DC Motor Control and Drives
- Lighting and Temperature Control

Maximum Rated

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
V_{RSM}/V_{DSM}	Non-Repetitive Reverse / Forward Blocking Voltage	$T_{VJ}=25^{\circ}\text{C}$	1900			V
V_{RRM}/V_{DRM}	Repetitive Reverse / Forward Blocking Voltage	$T_{VJ}=25^{\circ}\text{C}$	1800			V
I_{TAV}	Average Forward Current	$T_C=85^{\circ}\text{C}$, 180° Sine	110			A
$I_{T(RMS)}$	RMS Forward Current	180° sine	173			A
I_{TSM}	Surge Current	$T_{VJ}=25^{\circ}\text{C}$, $t_p=10\text{ms}$	2400			A
I^2t	I^2t - value	$T_{VJ}=25^{\circ}\text{C}$, $t_p=10\text{ms}$	28800			A^2s
di/dt	$V_D=2/3V_{DRM}$, $I_G=0.3\text{A}$, $t_p=200\mu\text{s}$, $di_G/dt=0.3\text{A}/\mu\text{s}$, $T_{VJ}=125^{\circ}\text{C}$				150	$\text{A}/\mu\text{s}$
dv/dt	$V_D=2/3V_{DRM}$, Gate Open, $T_{VJ}=125^{\circ}\text{C}$				1000	$\text{V}/\mu\text{s}$



Electrical Characteristics

Symbol	Description	Conditions	Min.	Typ.	Max.	Units
V_{TM}	Forward Voltage Drop	$I_T=150A$	$T_{VJ}=25^{\circ}C$		1.20	V
			$T_{VJ}=125^{\circ}C$		1.15	V
		$I_T=330A$	$T_{VJ}=25^{\circ}C$		1.45	V
			$T_{VJ}=125^{\circ}C$		1.50	V
I_{RRM}/I_{DRM}	Reverse Current / Drain Current	$V_{R/D}=V_{RRM}$	$T_{VJ}=125^{\circ}C$		10	mA
P_{GM}	Maximum Peak Gate Power				10	W
$P_{G(AV)}$	Maximum Average Gate Power				3	W
V_{TO}	Threshold Voltage	$T_{VJ}=T_{VJmax}$			0.85	V
r_T	Slope Resistance	$T_{VJ}=T_{VJmax}$			2.0	m Ω
V_{GT}	Gate Trigger Voltage	$V_D=12V, R_L=30\Omega, T_{VJ}=25^{\circ}C$			1.5	V
I_{GT}	Gate Trigger Current	$V_D=12V, R_L=30\Omega, T_{VJ}=25^{\circ}C$	20		120	mA
V_{GD}	Gate Non-trigger Voltage	$V_D=2/3V_{DRM}, T_{VJ}=125^{\circ}C$			0.25	V
I_{GD}	Gate Non-trigger Current	$V_D=2/3V_{DRM}, T_{VJ}=125^{\circ}C$			10	mA
I_L	Latching Current	$T_{VJ}=25^{\circ}C$			300	mA
I_H	Holding Current	$T_{VJ}=25^{\circ}C$			250	mA
t_{gd}	Gate Controlled Delay Time	$V_D=1/2V_{DRM}, I_G=0.45A, di_G/dt=0.45A/\mu s, T_{VJ}=25^{\circ}C$			2	μs
t_q	Turn-off Time	$V_R=100V, I_T=150A, V_D=2/3V_{DRM}, t_p=200\mu s, di/dt=10A/\mu s, dv/dt=20V/\mu s, T_{VJ}=100^{\circ}C$		185		μs

Thermal Characteristics

Symbol	Description	Min.	Typ.	Max.	Units
$R_{th(j-c)}$	Thyristor Thermal Resistance: Junction-to-Case (per Thyristor)			0.20	$^{\circ}C/W$
$R_{th(c-s)}$	Case-to-Sink Thermally (Conductive Grease Applied)			0.12	$^{\circ}C/W$



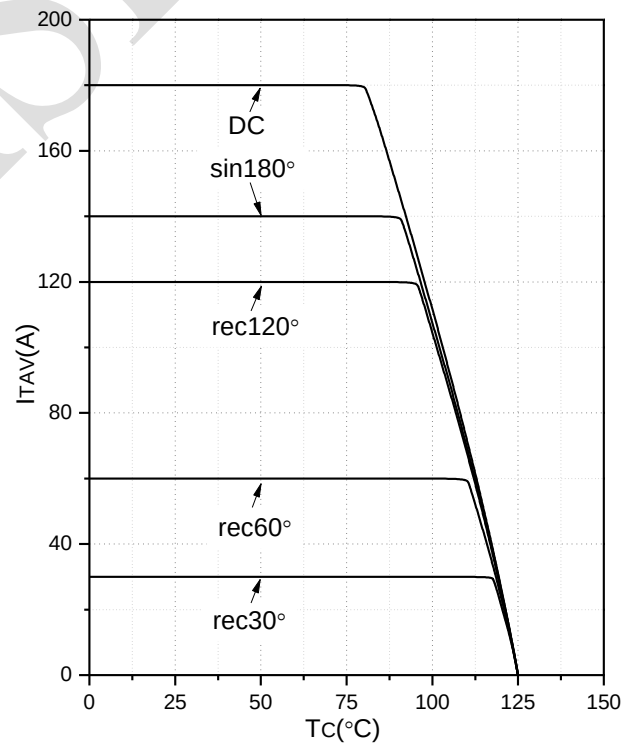
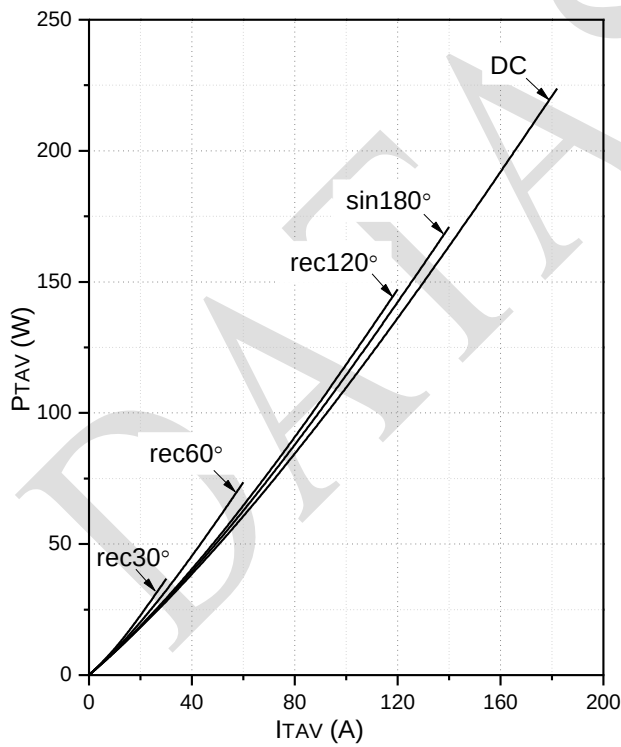
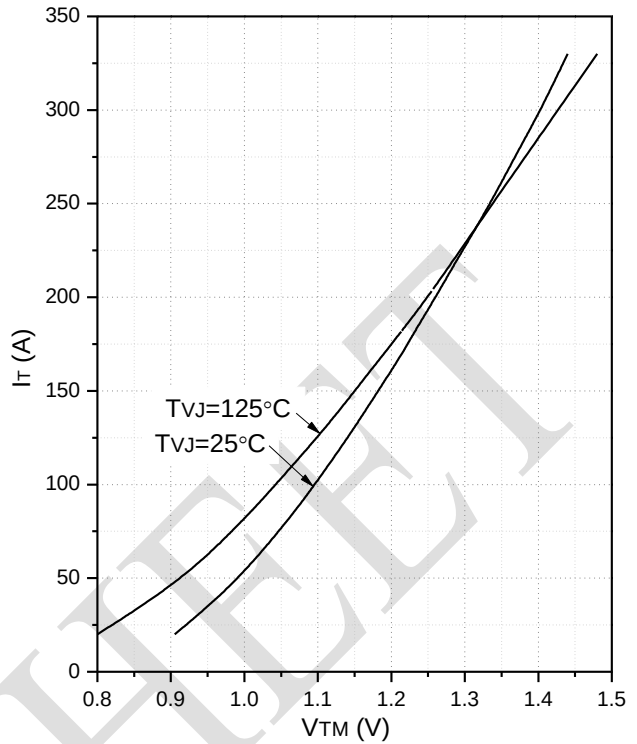
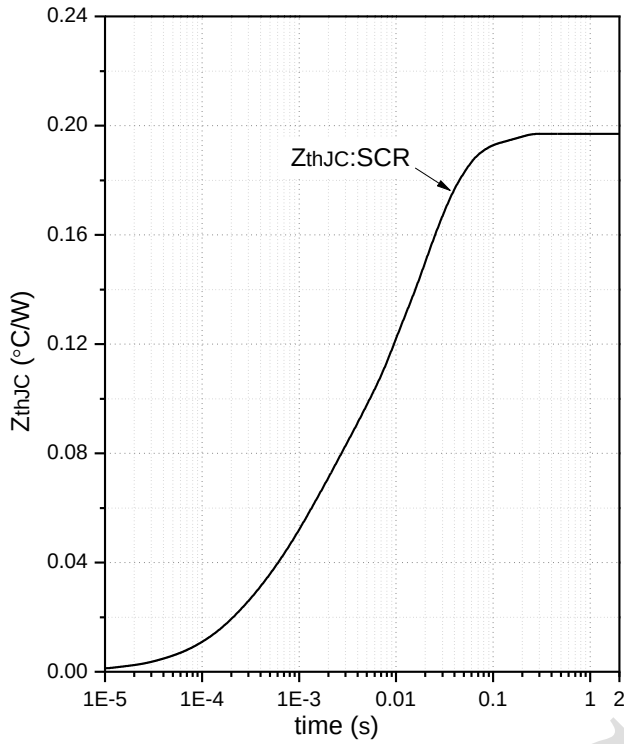
Module

Symbol	Description		Min.	Typ.	Max.	Units
V _{ISOL}	Isolation Voltage (All Terminals Shorted)	AC 50Hz, RMS, 1minute, I _{ISOL} ≤ 1mA	3000			V
Internal Isolation			Al ₂ O ₃			
d _{creep}	Creepage Distance on Surface	terminal to terminal	9.7			mm
		terminal to backside	16.0			mm
T _{VJ}	Maximum Junction Temperature				125	°C
T _{VJOP}	Operating Junction Temperature Range		-40		125	°C
T _{stg}	Storage Temperature		-40		125	°C
CTI	Comparative Tracking Index		200			
M	Power Terminals Screw:M5		3.0		5.0	N·m
M	Mounting Screw:M6		4.0		6.0	N·m
G	Weight			80		g

Ordering Information Table

Device code	RS	110	HF	180	A9	H
	①	②	③	④	⑤	⑥

- ① - SCR Module
- ② - Rated Current (110=110A)
- ③ - Circuit Configuration (Half Bridge)
- ④ - Rated Voltage (180=1800V)
- ⑤ - Package Type
- ⑥ - Test Level (Pass the Important Reliability Test-Industrial Grade)





Date	Revision	Notes
04/22/2021	A	Final Version
04/04/2023	B	Update Circuit Diagram

Announcement

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The datasheet with “REV.” + “Arabic numerals” is based on engineering data for initial reference purpose only.

The released datasheet would be issued with “REV.” + “alphabet characters”.