

180NQ035/R-1 180NQ040/R-1 180NQ045/R-1 SCHOTTKY RECTIFIER



Features

- 150°C T_J operation
- Unique high power, Half-Pak module
- Replaces three parallel DO-5' S
- Easier to mount and lower profile than DO-5' S
- High purity, high temperature epoxy encapsulation for enhanced
- mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Baseplate: Nickel plated; Terminals: Nickel plated
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Circuit Diagram



Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units	
Peak Repetitive Reverse Voltage	V _{RRM}	-	35	180NQ035(R)-1	V
Working Peak Reverse Voltage	V _{RWM}		40	180NQ040(R)-1	
DC Blocking Voltage	V _R		45	180NQ045(R)-1	
Average Forward Current	I _{F(AV)}	50% duty cycle @T _C =90°C, rectangular wave form	180		A
Peak One Cycle Non-Repetitive Surge Current	I _{FSM}	8.3 ms, half Sine pulse	3480		A
Non-Repetitive Avalanche Energy	E _{AS}	T _J =25°C, I _{AS} =36A, L=0.37mH	243		mJ
Repetitive Avalanche Current	I _{AR}	Current decaying linearly to zero in 1 µsec Frequency limited by T _J max. V _A =1.5×V _R typical	36		A

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 180A, Pulse, $T_J = 25\text{ }^\circ\text{C}$ @ 360A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.58 -	0.60 0.78	V
	V_{F2}	@ 180A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ @ 360A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.50 -	0.56 0.75	V
Reverse Current*	I_{R1}	@ $V_R = \text{rated } V_R$ $T_J = 25\text{ }^\circ\text{C}$	0.3	15	mA
	I_{R2}	@ $V_R = \text{rated } V_R$ $T_J = 125\text{ }^\circ\text{C}$	250	600	mA
Junction Capacitance	C_T	@ $V_R = 5\text{V}$, $T_C = 25\text{ }^\circ\text{C}$ $f_{\text{SIG}} = 1\text{MHz}$	5800	7700	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/ μs

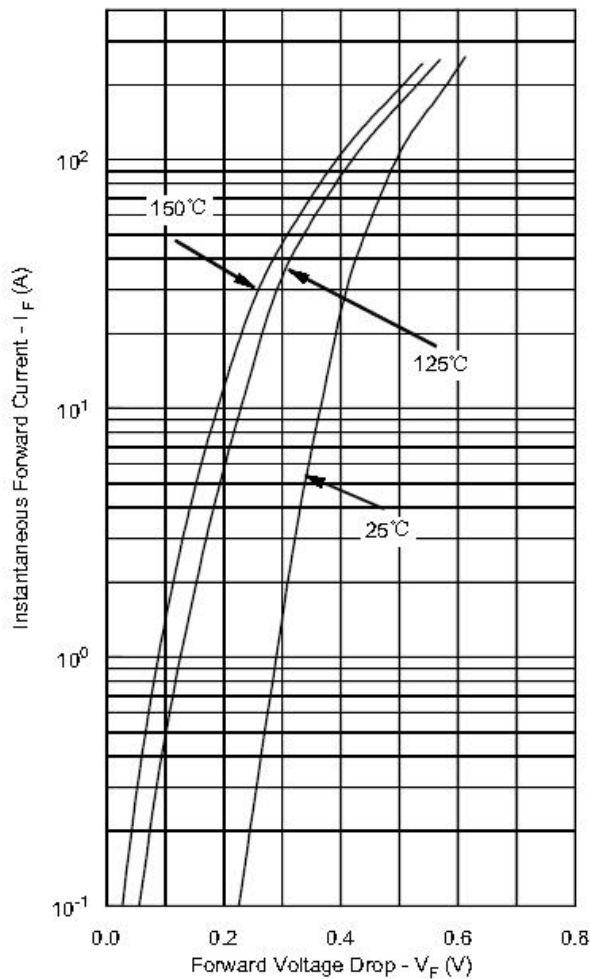
* Pulse width < 300 μs , duty cycle < 2%

Thermal-Mechanical Specifications:

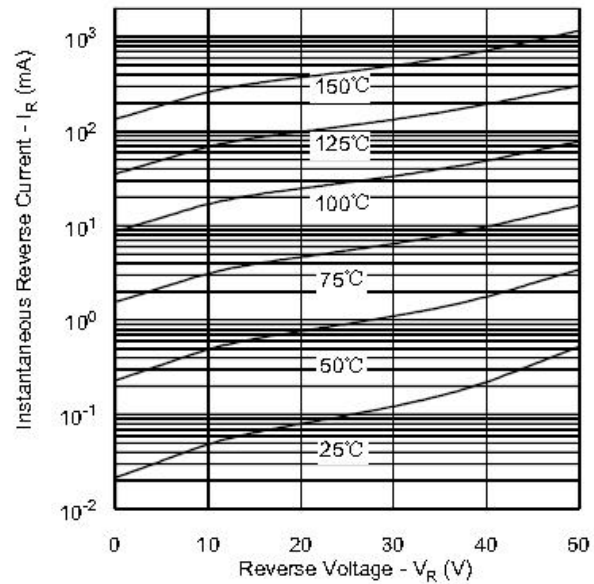
Characteristics	Symbol	Condition	Specification		Units
Junction Temperature	T_J	-	-55 to +150		$^\circ\text{C}$
Storage Temperature	T_{stg}	-	-55 to +150		$^\circ\text{C}$
Typical Thermal Resistance Junction to Case	$R_{\theta\text{JC}}$	DC operation	0.30		$^\circ\text{C/W}$
Typical Thermal Resistance, case to Heat Sink	$R_{\theta\text{CS}}$	Mounting surface, smooth and greased	0.15		$^\circ\text{C/W}$
Mounting Torque	T_M	Non-lubricated threads	Mounting Torque	23(min) 29(max)	Kg-cm
			Terminal Torque	35(min) 46(max)	
Approximate Weight	wt	-	25.6		g
Case Style	PRM1-1				

Ratings and Characteristics Curves

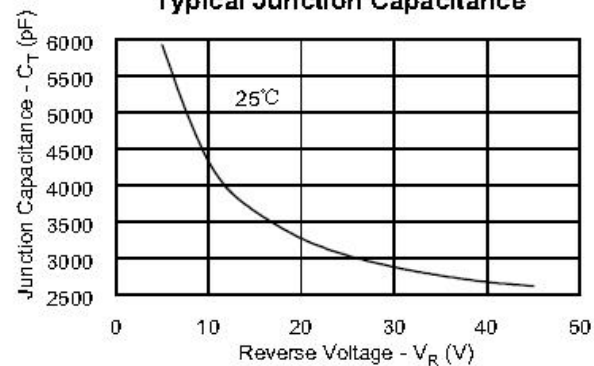
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance

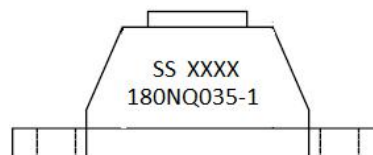


Ordering Information

Device	Package	Shipping
180NQ SERIES	PRM1-1(Pb-Free)	27pcs/ box

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

Marking Diagram

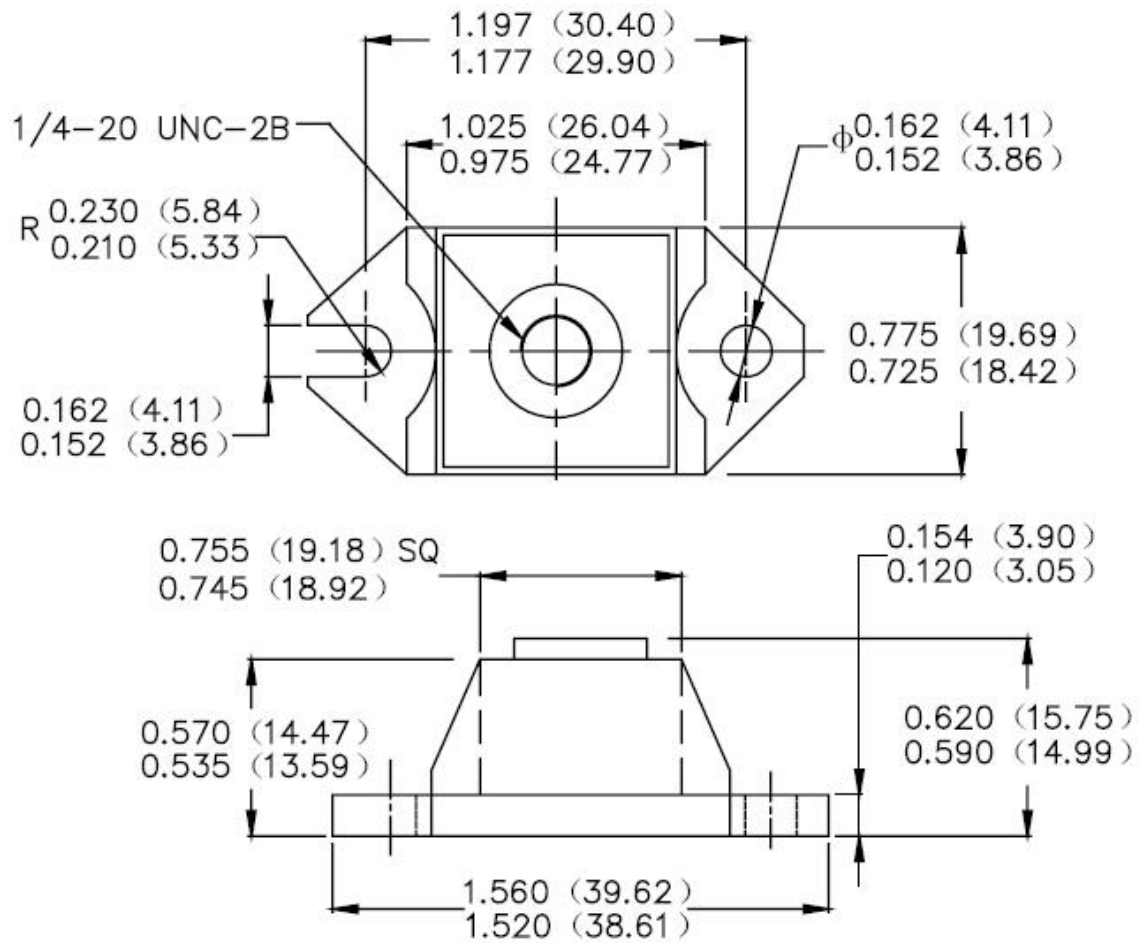


Where XXXX is YYWW

1st row SS YYWW
2nd row 180NQ035-1
SS = SS
YY = Year
WW = Week

Cautions: Molding resin
Epoxy resin UL:94V-0

Mechanical Dimensions PRM1-1 (Inches/Millimeters)





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