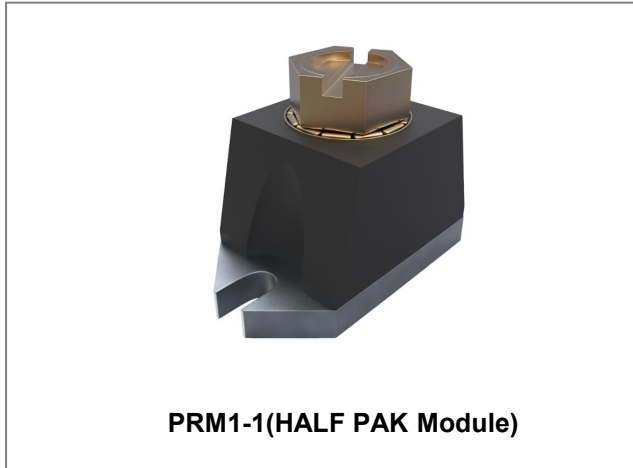


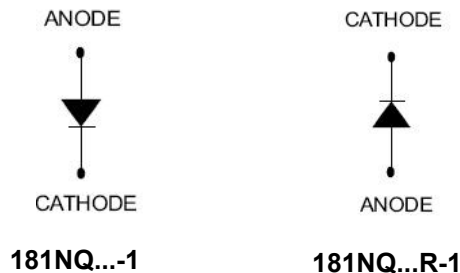
## 181NQ035/R-1 181NQ040/R-1 181NQ045/R-1 SCHOTTKY RECTIFIER



### Features

- 175°C T<sub>J</sub> 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 <sub>RRM</sub>	-	35	181NQ035(R)-1
Working Peak Reverse Voltage	V <sub>RWM</sub>		40	181NQ040(R)-1
DC Blocking Voltage	V <sub>R</sub>		45	181NQ045(R)-1
Average Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>C</sub> =125°C, rectangular wave form	180	A
Peak One Cycle Non-Repetitive Surge Current	I <sub>FSM</sub>	8.3 ms, half Sine pulse	3000	A
Non-Repetitive Avalanche Energy	E <sub>AS</sub>	T <sub>J</sub> =25°C, I <sub>AS</sub> =36A, L=0.38mH	243	mJ
Repetitive Avalanche Current	I <sub>AR</sub>	Current decaying linearly to zero in 1 µsec Frequency limited by T <sub>J</sub> max. V <sub>A</sub> =1.5×V <sub>R</sub> typical	36	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	$V_{F1}$	@ 180A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.58	0.66	V
		@ 360A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.70	0.80	
	$V_{F2}$	@ 180A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.53	0.56	V
		@ 360A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.63	0.69	
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R$ , $T_J = 25\text{ }^\circ\text{C}$	0.1	15	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R$ , $T_J = 125\text{ }^\circ\text{C}$	20	135	mA
Junction Capacitance	$C_T$	@ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	6500	7800	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/ $\mu\text{s}$

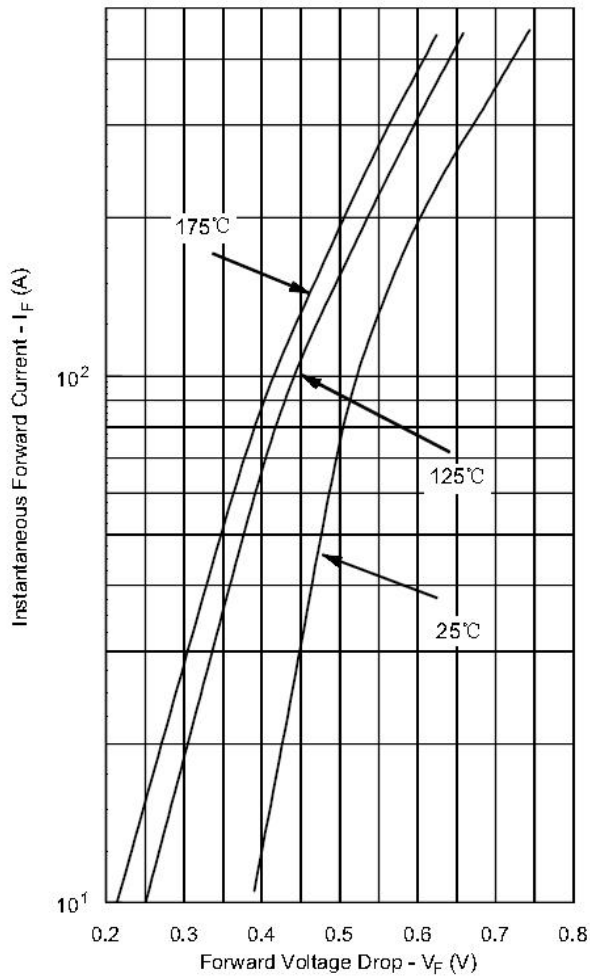
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications:**

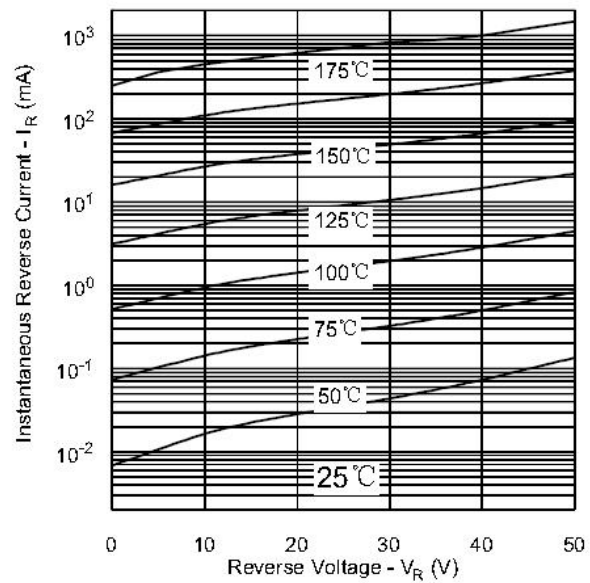
Characteristics	Symbol	Condition	Specification		Units
Junction Temperature	$T_J$	-	-55 to +175		$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-	-55 to +175		$^\circ\text{C}$
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	0.30		$^\circ\text{C/W}$
Typical Thermal Resistance, case to Heat Sink	$R_{\theta cs}$	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**

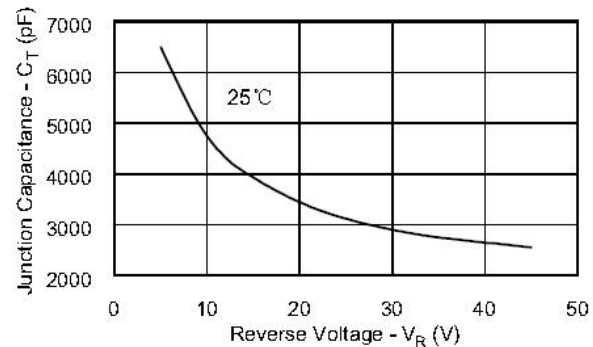
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



**Ordering Information**

Device	Package	Shipping
181NQ 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**

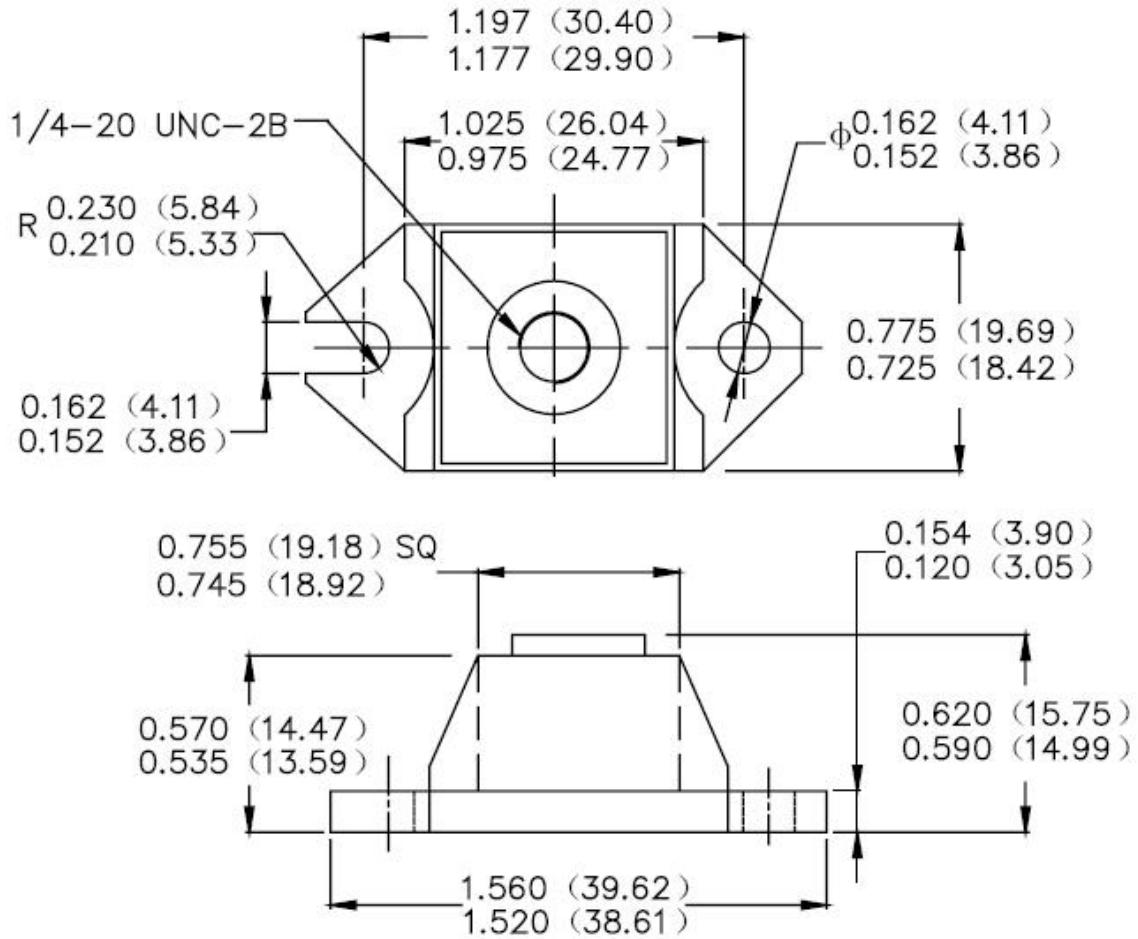


Where XXXX is YYWW

1st row SS YYWW  
2nd row 181NQ035-1  
SS = SS  
YY = Year  
WW = Week

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

**Mechanical Dimensions PRM1-1 (Inches/Millimeters)**





**DISCLAIMER:**

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