

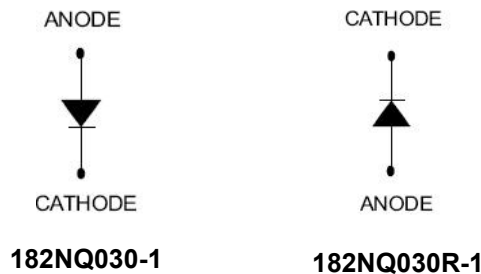
## 181NQ030/R-1 SCHOTTKY RECTIFIER



### Features

- 150°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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	-	30	V
Average Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>C</sub> =107°C, rectangular wave form	180	A
Peak One Cycle Non-Repetitive Surge Current	I <sub>FSM</sub>	8.3 ms, half Sine pulse	4140	A
Non-Repetitive Avalanche Energy	E <sub>AS</sub>	T <sub>J</sub> =25°C, I <sub>AS</sub> =36A, L=0.25mH	162	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, $T_J = 25\text{ }^\circ\text{C}$ @ 360A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.48 -	0.51 0.61	V
	$V_{F2}$	@ 180A, Pulse, $T_J = 125\text{ }^\circ\text{C}$ @ 360A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.38 -	0.41 0.54	V
Reverse Current*	$I_{R1}$	@ $V_R = \text{rated } V_R$ , $T_J = 25\text{ }^\circ\text{C}$	0.5	15	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R$ , $T_J = 125\text{ }^\circ\text{C}$	500	840	mA
Junction Capacitance	$C_T$	@ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	7000	7700	pF
Voltage Rate of Change	dv/dt	-	-	10,000	V/ $\mu\text{s}$

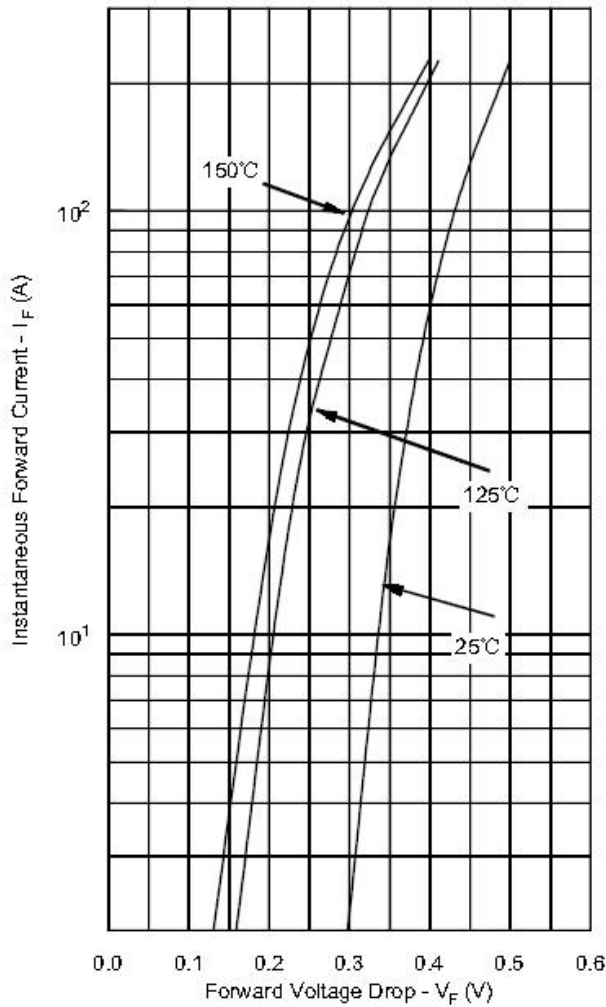
\* Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications:**

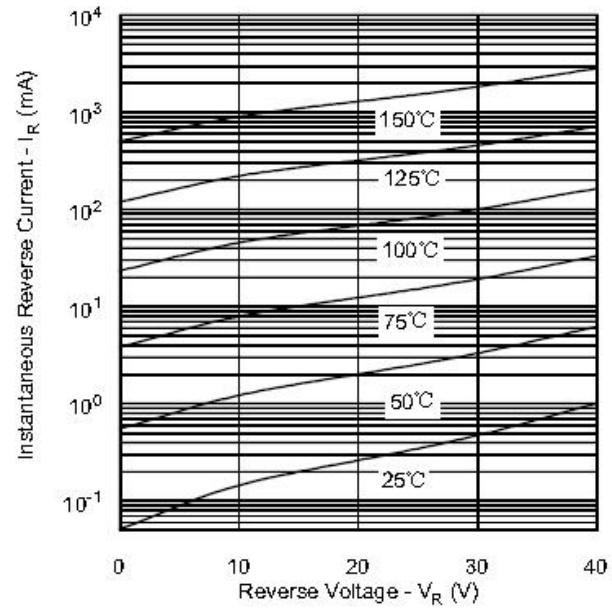
Characteristics	Symbol	Condition	Specification	Units	
Junction Temperature	$T_J$	-	-55 to +150	$^\circ\text{C}$	
Storage Temperature	$T_{stg}$	-	-55 to +150	$^\circ\text{C}$	
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	0.30	$^\circ\text{C/W}$	
Typical Thermal Resistance, 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**

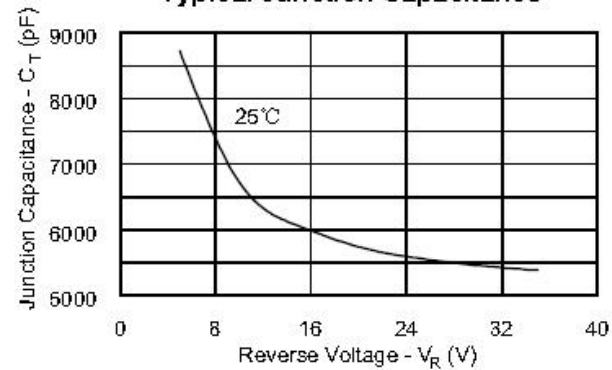
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



**Ordering Information**

Device	Package	Shipping
182NQ030-1	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**

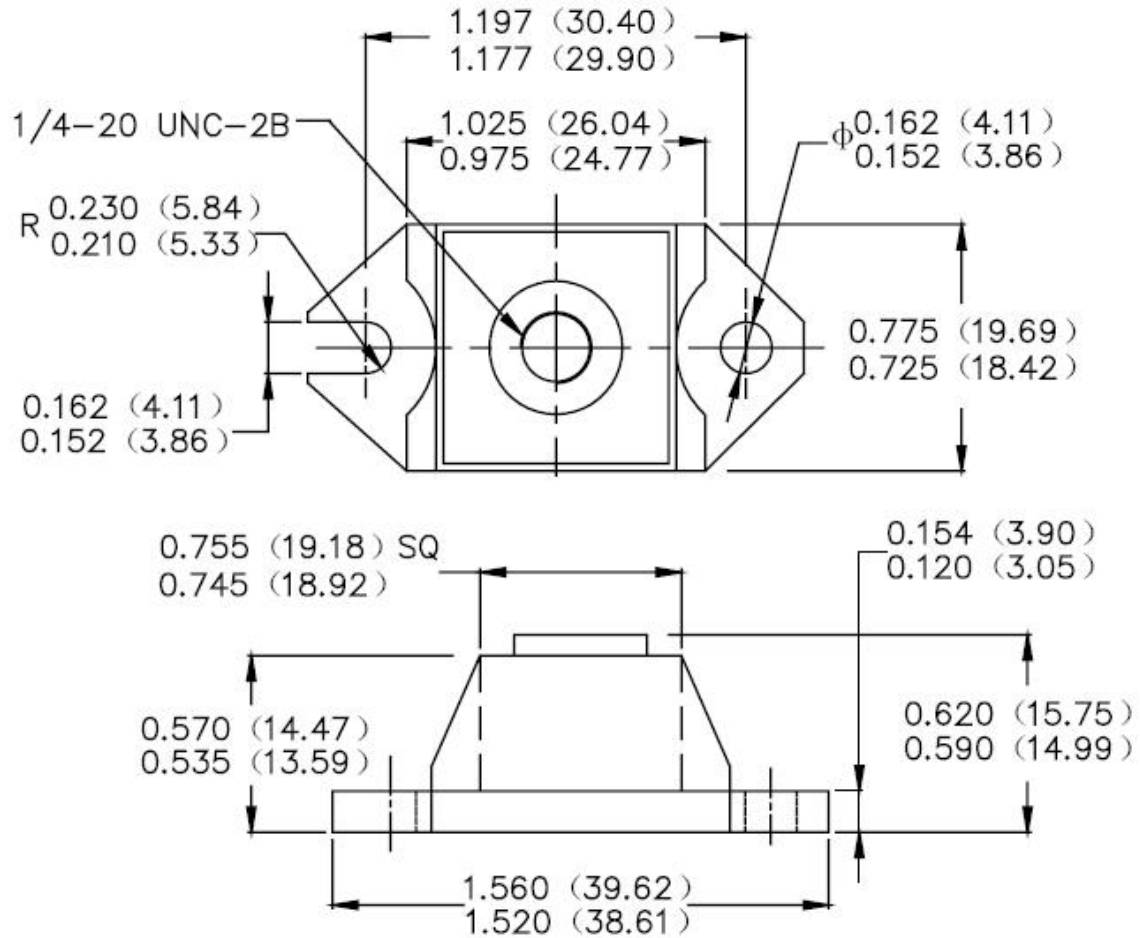


Where XXXX is YYWW

1st row SS YYWW  
2nd row 182NQ030-1  
SS = SS  
YY = Year  
WW = Week

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

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





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