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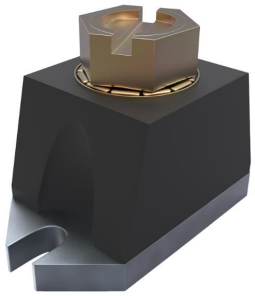
242NQ030/R-1 SCHOTTKY RECTIFIER



PRM1-1(HALF PAK Module)

Features

- 150℃ 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
- Very 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

242NQ030-1 242NQ030R-1

The top side is terminal, the bottom side is base plate.

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_{RRM} V_{RWM} V_R	-	30	V
Average Forward Current	$I_{F(AV)}$	50% duty cycle @T_C =111°C, rectangular wave form	240	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3 ms, half Sine pulse	3600	A
Non-Repetitive Avalanche Energy	E_{AS}	T_J=25℃,I_{AS}=48A,L=0.19mH	216	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	48	A

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Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 240A, Pulse, T_J = 25 °C @ 480A, Pulse, T_J = 25 °C	0.49 0.58	0.51 0.62	V
	V_{F2}	@ 240A, Pulse, T_J = 125 °C @ 480A, Pulse, T_J = 125 °C	0.40 0.47	0.42 0.54	V
Reverse Current*	I_{R1}	@V_R = rated V_R T_J = 25 °C	0.7	20	mA
	I_{R2}	@V_R = rated V_R T_J = 125 °C	150	1120	mA
Junction Capacitance	C_T	@V_R = 5V, T_C = 25 °C f_{SIG} = 1MHz	11000	14800	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		°C
Storage Temperature	T_{stg}	-	-55 to +150		°C
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	0.25		°C/W
Typical Thermal Resistance, case to Heat Sink	$R_{\theta cs}$	Mounting surface, smooth and greased	0.07		°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	-	36		g
Case Style	PRM1-1				

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Ratings and Characteristics Curves

Figure1
Typical Forward Characteristics

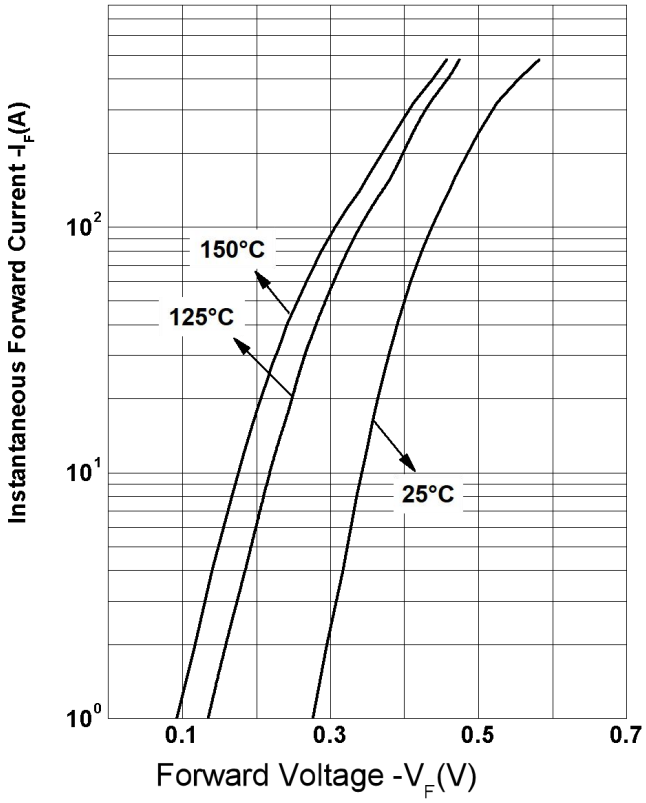


Figure 2
Typical Reverse Characteristics

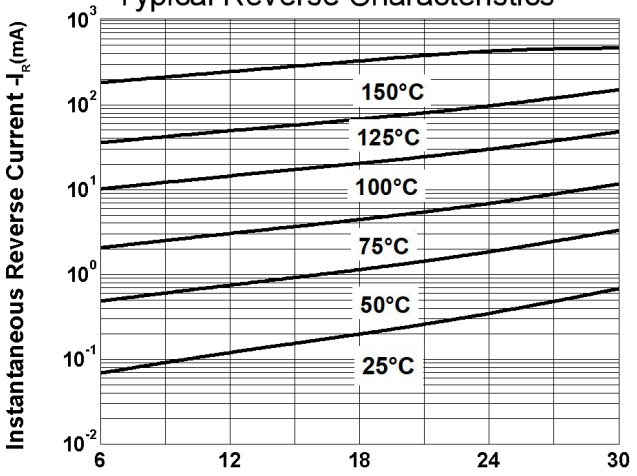
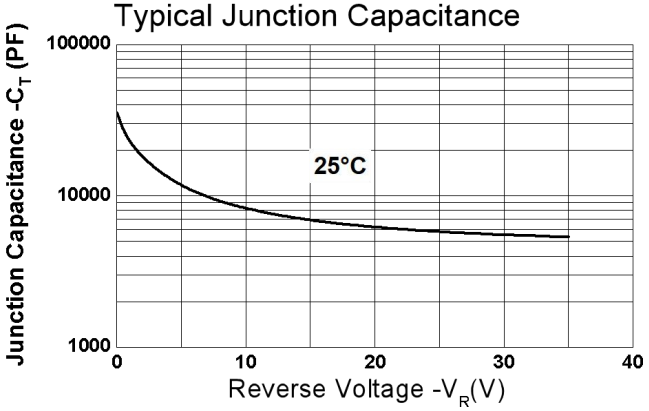


Figure 3
Typical Junction Capacitance



Ordering Information

Device	Package	Shipping
242NQ030-1	PRM1-1(Pb-Free)	27pcs/ box

Marking Diagram

Where XXXX is YYWW

1st row SS YYWW
2nd row 242NQ030-1
SS = SS
YY = Year
WW = Week

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

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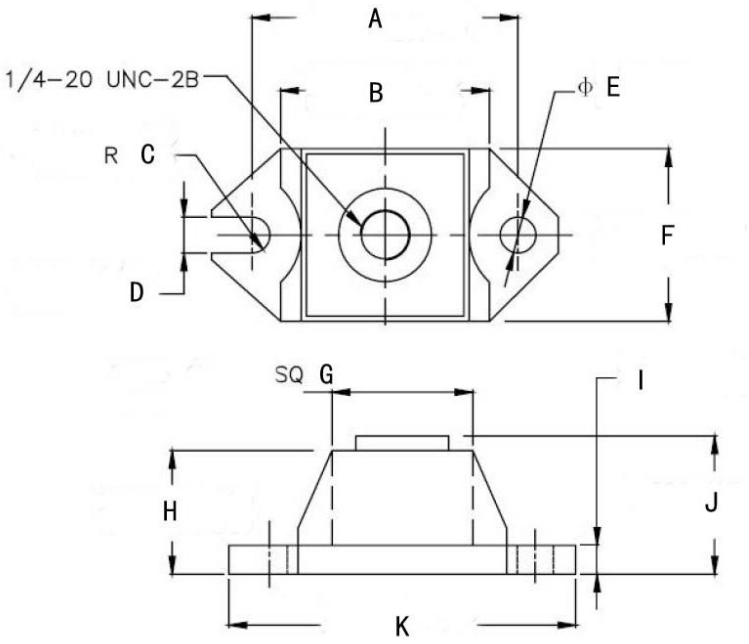
Mechanical Dimensions PRM1-1 (Inches/Millimeters)



SYMBOL	MillImeters		Inches	
	Min.	Max.	Min.	Max.
A	29.35	30.95	1.155	1.219
B	24.77	26.04	0.975	1.026
C	1.79	2.19	0.070	0.087
D	3.73	4.24	0.146	0.167
E	3.73	4.24	0.146	0.167
F	18.42	19.69	0.725	0.775
G	18.55	19.55	0.730	0.770
H	13.59	14.47	0.535	70.500
I	3.05	3.90	0.120	0.154
J	14.87	15.87	0.585	0.625
K	38.61	39.62	1.520	1.560

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