

Technical Data  
Data Sheet N1158, Rev. -

*Green Products*

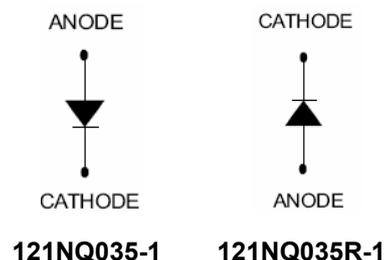
**121NQ035/R-1 121NQ040/R-1 121NQ045/R-1**  
**SCHOTTKY RECTIFIER**

**Applications:**

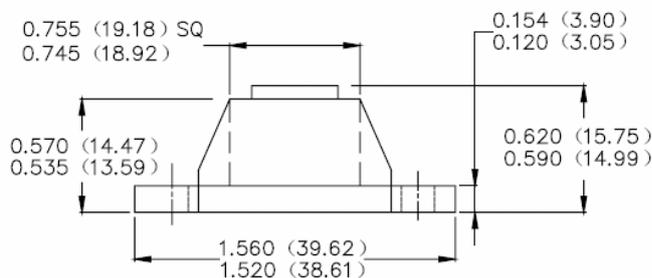
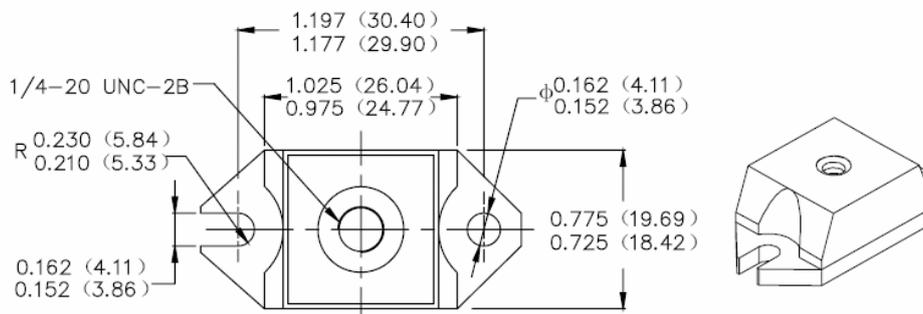
- Switching power supply • Converters • Free-Wheeling diodes • Reverse battery protection

**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
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request



**Mechanical Dimensions: In Inches / mm**



**PRM1-1(HALF PAK Module)**

**MARKING, MOLDING RESIN**

Marking for 121NQ035/R-1, 1<sup>st</sup> row SS YYWWL, 2<sup>nd</sup> row 121NQ035-1/121NQ035R-1  
Where YY is the manufacture year  
WW is the manufacture week code  
L is the wafer's Lot Number  
Molding resin  
Epoxy resin UL:94V-0

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**Maximum Ratings:**

Characteristics	Symbol	Condition	Max.		Units
Peak Inverse Voltage	$V_{RWM}$	-	35	121NQ035(R)-1	V
			40	121NQ040(R)-1	
			45	121NQ045(R)-1	
Max. Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C = 133^\circ\text{C}$ , rectangular wave form	120		A
Max. Peak One Cycle Non-Repetitive Surge Current (per leg)	$I_{FSM}$	8.3 ms, half Sine pulse	2640		A
Non-Repetitive Avalanche Energy	$E_{AS}$	$T_J = 25^\circ\text{C}, I_{AS} = 12\text{A}, L = 1.12\text{mH}$	81		mJ
Repetitive Avalanche Current	$I_{AR}$	Current decaying linearly to zero in 1 $\mu\text{sec}$ Frequency limited by $T_J$ max. $V_A = 1.5 \times V_R$ typical	12		A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop*	$V_{F1}$	@ 120A, Pulse, $T_J = 25^\circ\text{C}$ @ 240A, Pulse, $T_J = 25^\circ\text{C}$	0.65 0.83	V
	$V_{F2}$	@ 120A, Pulse, $T_J = 125^\circ\text{C}$ @ 240A, Pulse, $T_J = 125^\circ\text{C}$	0.56 0.70	
Max. Reverse Current (per leg) *	$I_{R1}$	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	10	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R, T_J = 125^\circ\text{C}$	90	mA
Threshold Voltage	$V_{F(TO)}$	$T_J = T_{Jmax}$	0.32	V
Forward Slope Resistance	$r_t$		1.37	m $\Omega$
Max. Junction Capacitance (per leg)	$C_T$	@ $V_R = 5\text{V}, T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	5200	pF
Typical Series Inductance (per leg)	$L_S$	Measured lead to lead 5 mm from package body	7.0	nH
Max. Voltage Rate of Change	dv/dt	-	10,000	V/ $\mu\text{s}$

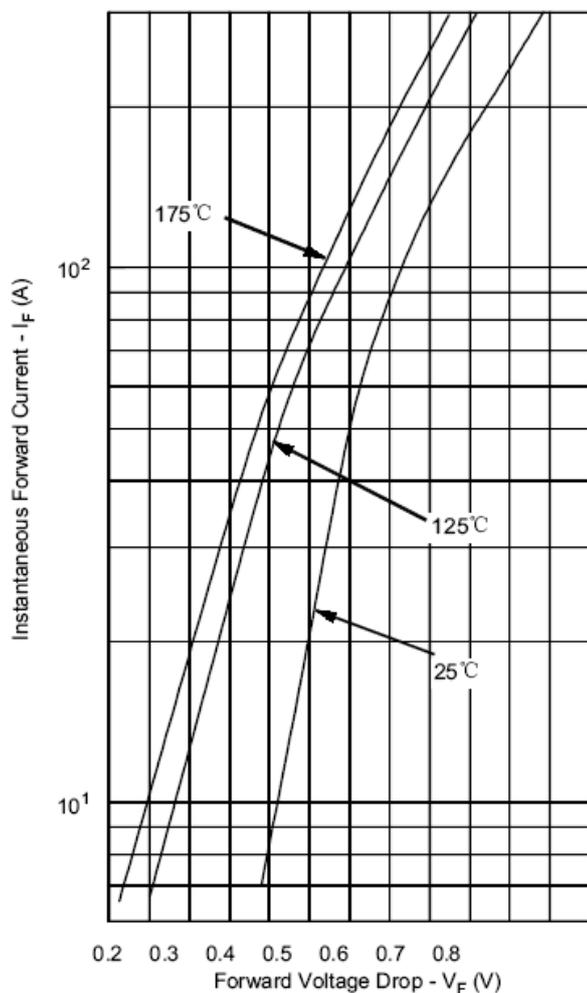
- Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

**Thermal-Mechanical Specifications:**

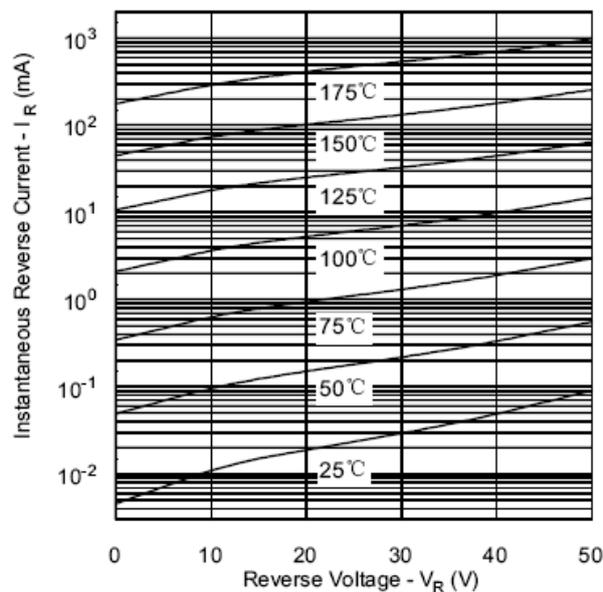
Characteristics	Symbol	Condition	Specification		Units
Max. Junction Temperature	$T_J$	-	-55 to +175		$^\circ\text{C}$
Max. Storage Temperature	$T_{stg}$	-	-55 to +175		$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	0.40		$^\circ\text{C/W}$
Typical Thermal Resistance, 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				

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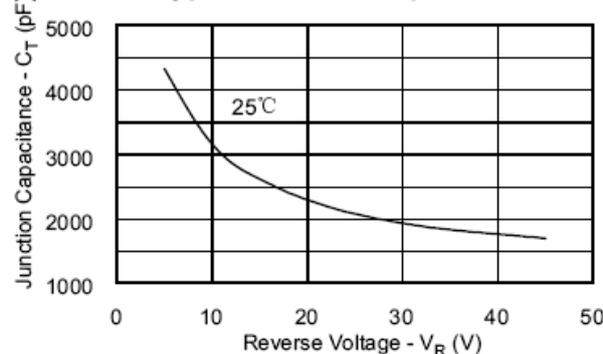
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



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