

245NQ400(R)-1 Ultrafast Recovery Modules



Features

- Reduced RFI and EMI
- Reduced Snubbing
- Extensive Characterization of Recovery Parameters
- Base plate: 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



Maximum Ratings(limiting values, at 25 °C unless otherwise specified)

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	-	400	V
Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C=100^\circ\text{C}$, rectangular wave form	240	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3 ms, half Sine pulse	1600	A

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 135A, Pulse, $T_J = 25^\circ\text{C}$	0.91	-	V
	V_{F2}	@ 240A, Pulse, $T_J = 25^\circ\text{C}$	0.98	1.50	V
	V_{F3}	@ 270A, Pulse, $T_J = 25^\circ\text{C}$	1.10	-	V
Reverse Current *	I_R	@ $V_R = \text{rated } V_R$, $T_J = 25^\circ\text{C}$	0.3	30	μA
Junction Capacitance	C_T	@ $V_R = 5\text{V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	1333	2000	pF
Reverse Recovery Time	t_{rr}	$I_F=0.5\text{A}$, $I_R=1\text{A}$, and $I_{RR}=0.25\text{A}$	200	250	ns
	t_{rr}	$I_F = 1.0\text{A}$, $di_F/dt = 200\text{A}/\mu\text{s}$, $V_R = 30\text{V}$	96	-	ns
Reverse Recovery Time	t_{rr}	$I_F = 120\text{A}$, $di_F/dt = -200\text{A}/\mu\text{s}$ $V_R = 200\text{V}$, $T_J = 25^\circ\text{C}$	80	-	ns
Reverse Recovery Charge	Q_{rr}		699.2	-	nC
Reverse Recovery Current	I_{RRM}		17.5	-	A

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

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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				

Ratings and Characteristics Curves

Figure 1
Typical Forward Characteristics

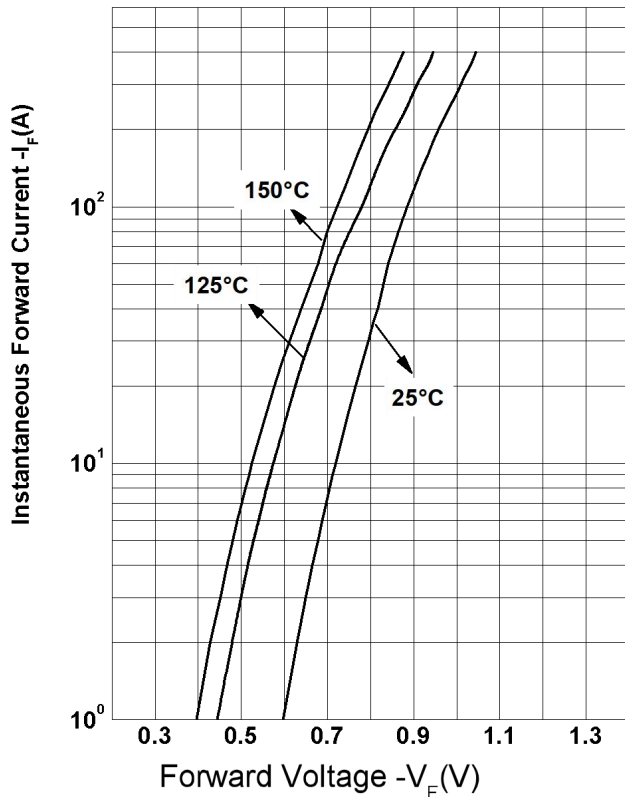


Figure 2
Typical Reverse Characteristics

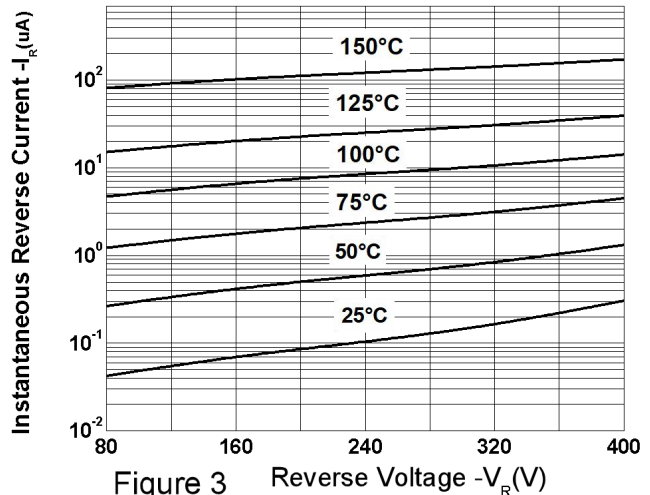
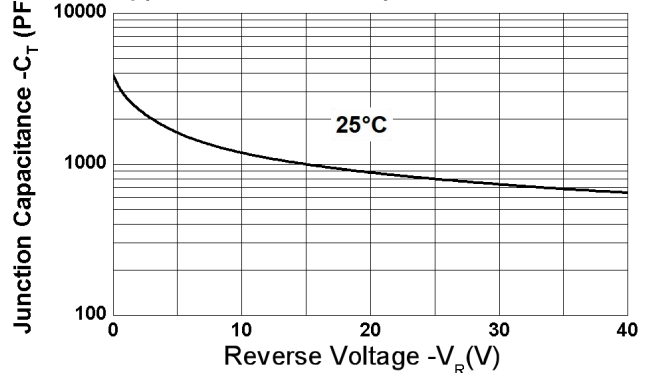


Figure 3
Typical Junction Capacitance



Ordering Information

Device	Package	Shipping
245NQ400(R)-1	PRM1-1(Pb-Free)	27pcs/ box

Marking Diagram

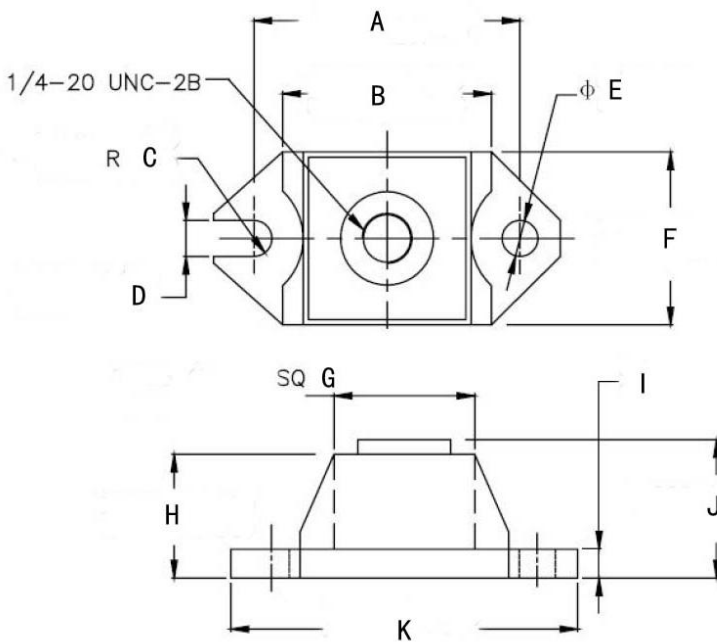


Where XXXX is YYWW

1st row SS YYWW
2nd row 245NQ400-1
SS = SS
YY = Year
WW = Week

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

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	0.570
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

Technical Data
Data Sheet N1792, Rev. D



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