MOSPEC

URF1020C

Switchmode
Full Plastic Dual Ultrafast Power Rectifiers

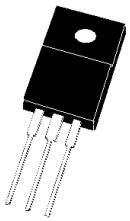
Designed for use in switching power supplies. inverters and as free wheeling diodes. These state-of-the-art devices have the following

Features

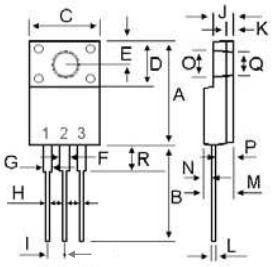
∗High Surge Capacity
∗Low Power Loss, High efficiency
∗150℃ Operating Junction Temperature
∗Low Stored Charge Majority Carrier Conduction
∗Low Forward Voltage , High Current Capability
∗High-Switching Speed Recovery Time
∗Plastic Material used Carries Underwriters Laboratory Flammability Classification 94V-O
∗"G" Green product-halogen free
The green product before is indicated by the date code" XMY" with alphabet "G"XMY

Ultrafast Power RECTIFIERS

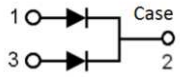
10 AMPERES
200 VOLTS



ITO-220AB



DIM	MILLIMETERS	
	MIN	MAX
A	14.80	16.10
B	12.65	13.80
C	9.85	10.36
D	4.60	6.80
E	2.50	3.50
F	1.00	1.45
G	1.00	1.45
H	0.30	0.90
I	2.40	2.70
J	2.34	3.30
K	0.55	1.30
L	0.36	0.80
M	4.20	4.90
N	1.10	1.80
O	2.90	3.50
P	2.50	3.15
Q	2.90	3.50
R	3.10	4.85



MAXIMUM RATINGS

Characteristic	Symbol	URF1020C	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	140	V
Average Rectifier Forward Current Total Device (Rated V_R)	$I_{F(AV)}$	5 10	A
Peak Repetitive Forward Current (Rate VR, Square Wave, 20kHz)	I_{FM}	10	A
Non-Repetitive Peak Surge Current (Surge applied at rate load conditions half-ware, single phase, 60Hz)	I_{FSM}	100	A
Operating and Storage Junction Temperature Range	T_J , T_{stg}	-65 to +150	℃

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Maximum Instantaneous Forward Voltage (I_F =5.0 Amp T_C = 25℃) (I_F =5.0 Amp T_C = 125℃)	V_F	--- ---	0.900 0.780	0.975 ---	V
Maximum Instantaneous Reverse Current (Rated DC Voltage, T_C = 25℃) (Rated DC Voltage, T_C = 125℃)	I_R	--- ---	0.01 7	5 ---	uA
Reverse Recovery Time (I_F = 0.5 A, I_R =1.0 , I_{rr} =0.25 A)	T_{rr}	---	19	35	ns
Typical Thermal Resistance junction to case	$R_{\theta JC}$		4.5		℃/w
Typical Junction Capacitance (Reverse Voltage of 4 volts & f=1 MHz)	C_P		39		pF

FIG-1 TYPICAL FORWARD CHARACTERISTICS

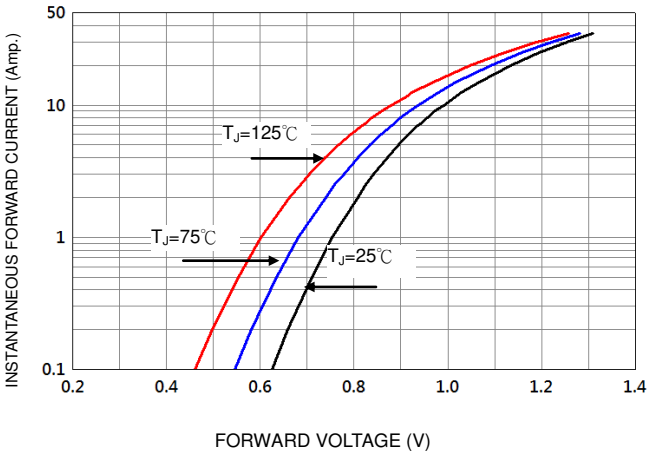


FIG-2 TYPICAL REVERSE CHARACTERISTICS

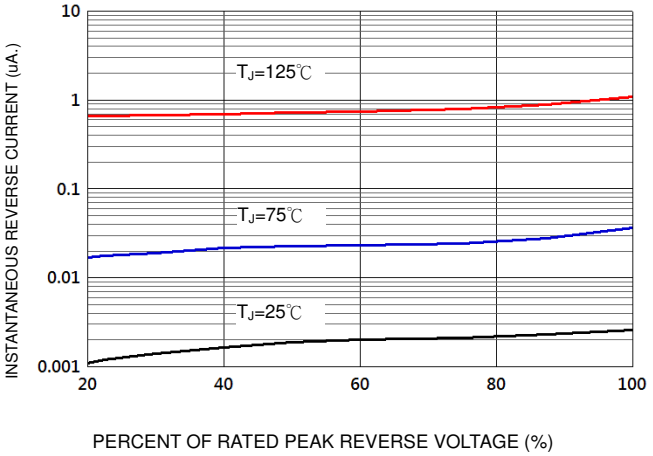


FIG-3 FORWARD CURRENT DERATING CURVE

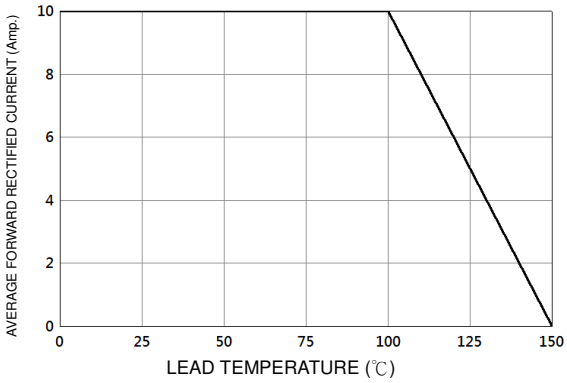


FIG-4TYPICAL JUNCTION CAPACITANCE

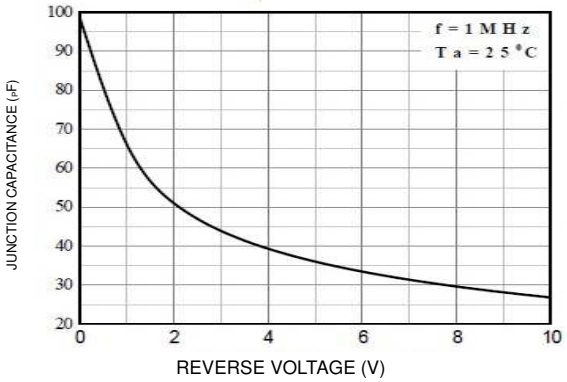
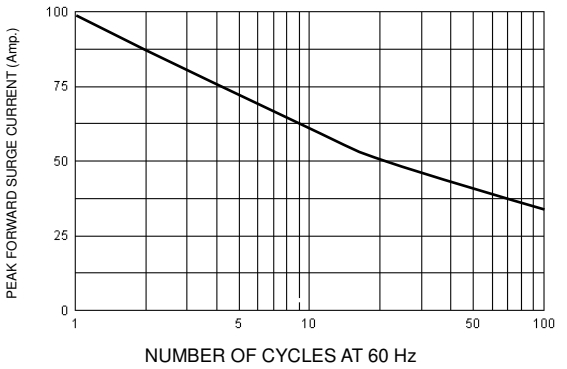
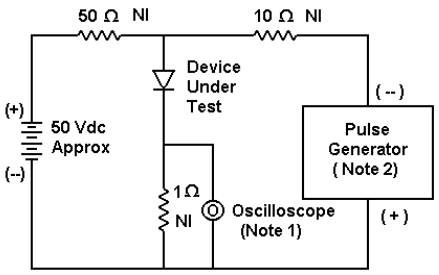
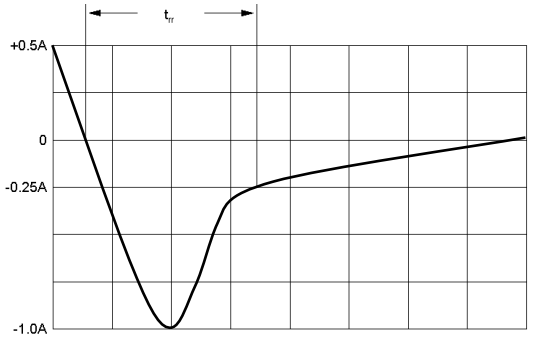


FIG-5PEAK FORWARD SURGE CURRENT





Notes:
1. Rise Time = 7 ns max. Input Impedance =1 M Ω , 22 pF
2. Rise Time = 10 ns max. Input Impedance = 50 Ω



Set time base for 10/20 ns/cm

FIG-6 Reverse Recovery Time Characteristic and Test Circuit Diagram

PACKAGE：

OUTLINE	PACKING METHOD	PCS/TUBE	PCS/BOX	PCS/CARTON
ITO-220	TUBE	50	2,000	8,000

SOLDER_REFLOW_PROFILE：

Table 4-2 Pb-free Process – Package Classification Reflow Temperatures

Package Thickness	Volume mm^3 <350	Volume mm^3 350 - 2000	Volume mm^3 >2000
<1.6 mm	260 +0 °C *	260 +0 °C *	260 +0 °C *
1.6 mm - 2.5 mm	260 +0 °C *	250 +0 °C *	245 +0 °C *
≥2.5 mm	250 +0 °C *	245 +0 °C *	245 +0 °C *

* Tolerance: The device manufacturer/supplier **shall** assure process compatibility up to and including the stated classification temperature (this means Peak reflow temperature +0 °C. For example 260 °C+0°C) at the rated MSL level.

Table 5-2 Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average Ramp-Up Rate (Ts_{max} to Tp)	3 °C/second max.	3° C/second max.
Preheat – Temperature Min (Ts_{min}) – Temperature Max (Ts_{max}) – Time (ts_{min} to ts_{max})	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-180 seconds
Time maintained above: – Temperature (T_L) – Time (t_L)	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak/Classification Temperature (Tp)	See Table 4.1	See Table 4.2
Time within 5 °C of actual Peak Temperature (tp)	10-30 seconds	20-40 seconds
Ramp-Down Rate	6 °C/second max.	6 °C/second max.
Time 25 °C to Peak Temperature	6 minutes max.	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

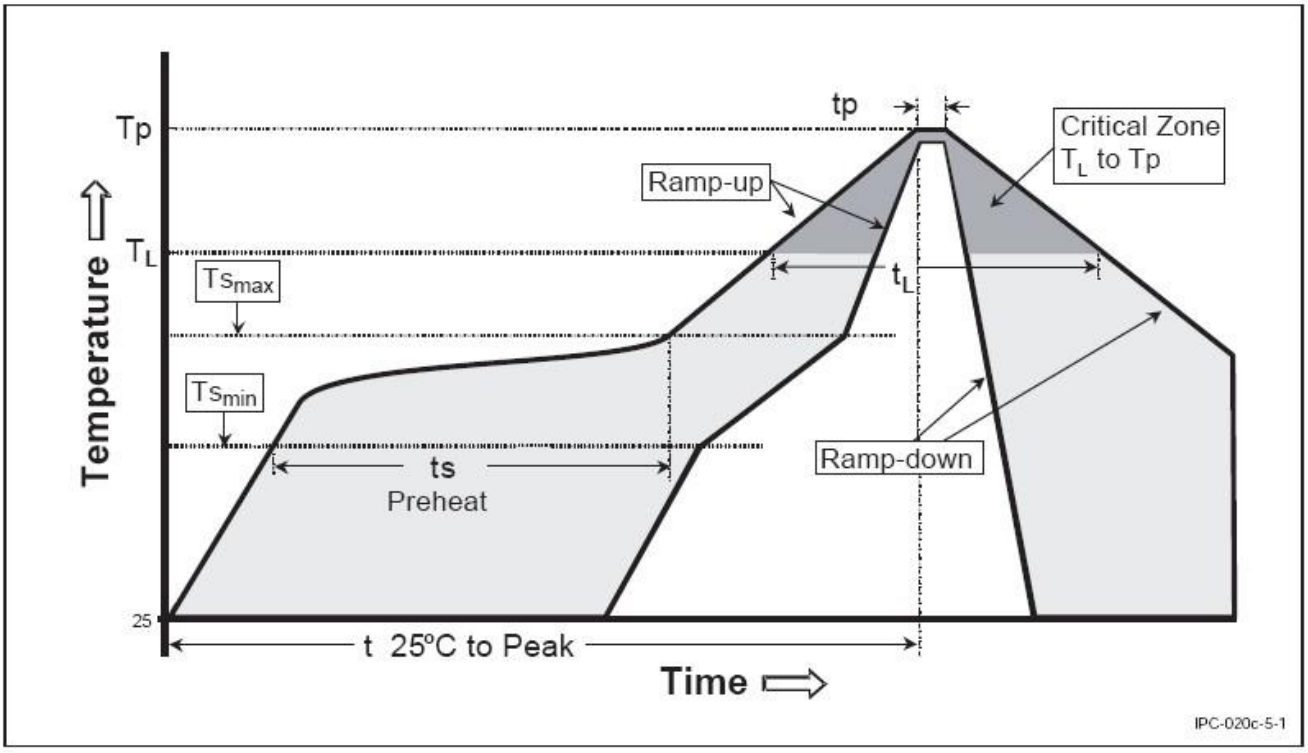


Figure 5-1 Classification Reflow Profile

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