MOSPEC

S20T100FN

Switchmode
Dual Schottky Barrier Power Rectifiers

Using the Schottky Barrier principle with a Refractory metal capable of high temperature operation metal. The proprietary barrier technology allows for reliable operation up to 150℃ junction temperature. Typical application are in switching Mode Power Supplies such as adaptors, DC/DC converters, free-wheeling and polarity protection diodes.

Features

- ∗ Low Forward Voltage.
- ∗ Low Switching noise.
- ∗ High Current Capacity
- ∗ Guarantee Reverse Avalanche.
- ∗ Guard-Ring for Stress Protection.
- ∗ Low Power Loss & High efficiency.
- ∗ High Operating Junction Temperature
- ∗ Low Stored Charge Majority Carrier Conduction.
- ∗ Plastic Material used Carries Underwriters Laboratory Flammability Classification 94V-O
- ∗ Green product-halogen free
  The green product before is indicated by the date code" XMY" with alphabet "G"XMY

Halogen Free RoHS COMPLIANT Pb

MAXIMUM RATINGS

Characteristic	Symbol	S20T100FN	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	70	V
Average Rectifier Forward Current (per diode) Total Device (Rated V_R),	$I_{F(AV)}$	10 20	A
Peak Repetitive Forward Current (Rate V_R, Square Wave, 20kHz)	I_{FM}	20	A
Non-Repetitive Peak Surge Current (Surge applied at rate load conditions halfware, single phase, 60Hz)	I_{FSM}	150	A
Operating and Storage Junction Temperature Range	T_J , T_{stg}	-65 to +150	℃

THERMAL RESISTANCES

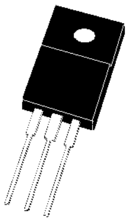
Typical Thermal Resistance junction to case	$R_{\theta jc}$	8	℃/w

ELECTRICAL CHARACTERISTICS

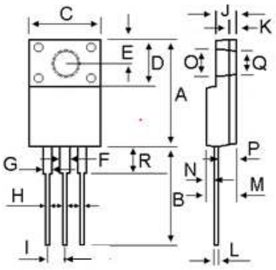
Characteristic	Symbol	Min.	Typ.	Max.	Unit
Maximum Instantaneous Forward Voltage (I_F =10 Amp T_C = 25℃) (I_F =10 Amp T_C = 125℃)	V_F	--- ---	0.76 0.66	0.8 ---	V
Maximum Instantaneous Reverse Current (Rated DC Voltage, T_C = 25℃) (Rated DC Voltage, T_C = 125℃)	I_R	--- ---	0.02 9.8	0.05 ---	mA

SCHOTTKY BARRIER RECTIFIERS

20 AMPERES
100 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

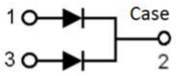


FIG-1 FORWARD CURRENT DERATING CURVE

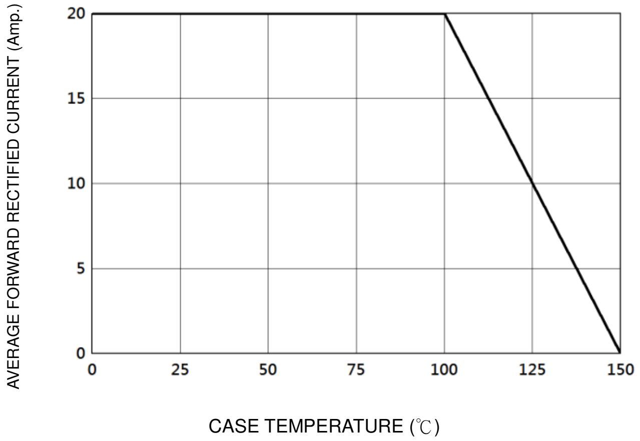


FIG-2 TYPICAL FORWARD CHARACTERISTICS

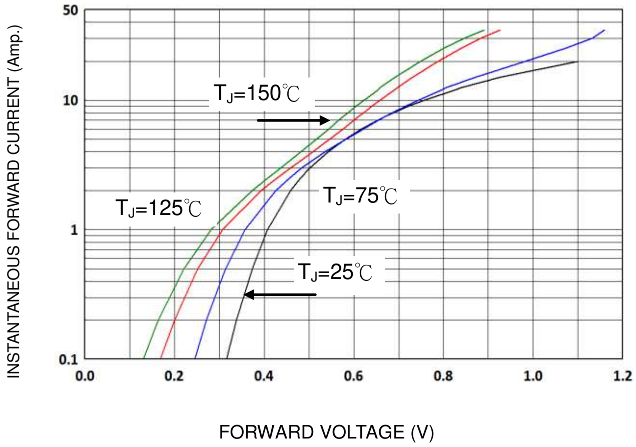


FIG-3 TYPICAL REVERSE CHARACTERISTICS

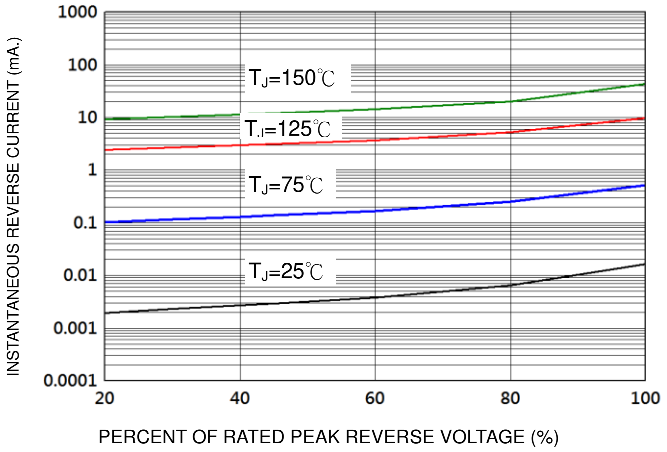


FIG-4 TYPICAL JUNCTION CAPACITANCE

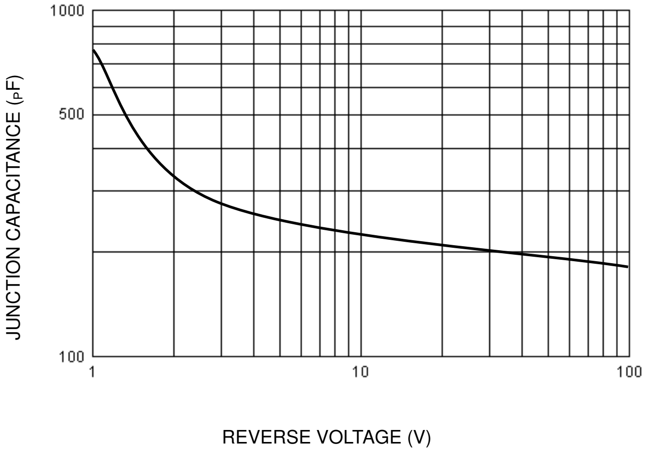
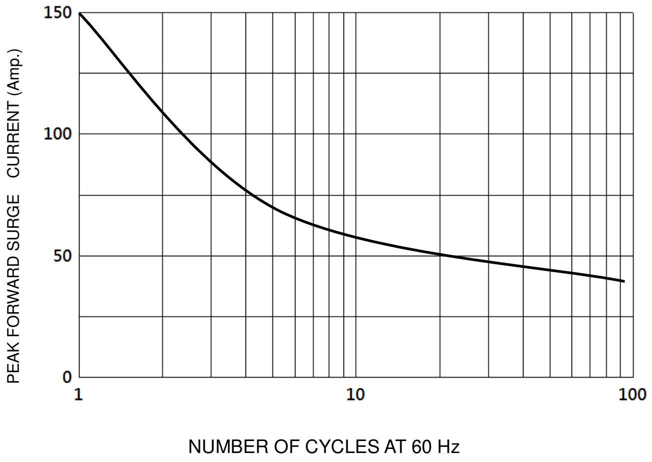


FIG-5 PEAK FORWARD SURGE CURRENT



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.

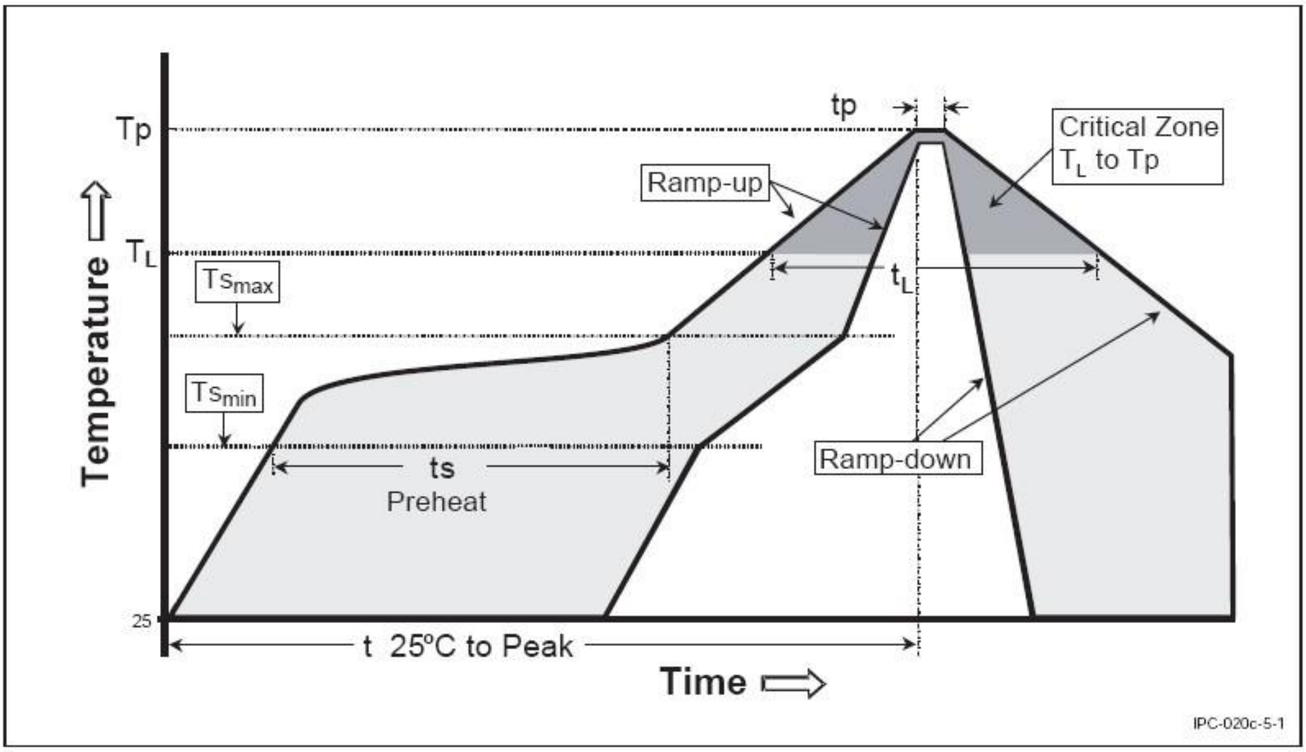


Figure 5-1 Classification Reflow Profile

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