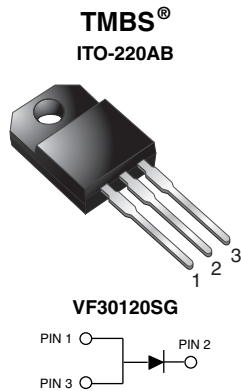


High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.47$ V at $I_F = 5$ A



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

For use in high frequency DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	30 A
V_{RRM}	120 V
I_{FSM}	220 A
V_F at $I_F = 30$ A	0.81 V
T_J max.	150 °C

MECHANICAL DATA

Case: ITO-220AB

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS compliant, and commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	VF30120SG	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	120	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	30	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	220	A
Voltage rate of change (rated V_R)	dV/dt	10 000	V/ μ s
Isolation voltage from terminal to heatsink $t = 1$ min	V_{AC}	1500	V
Operating junction and storage temperature range	T_J, T_{STG}	- 40 to + 150	°C



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 5 A	T _A = 25 °C	V _F ⁽¹⁾	0.54	-	V
	I _F = 15 A			0.80	-	
	I _F = 30 A			1.16	1.28	
	I _F = 5 A	T _A = 125 °C		0.47	-	
	I _F = 15 A			0.66	-	
	I _F = 30 A			0.81	0.90	
Reverse current	V _R = 90 V	T _A = 25 °C	I _R ⁽²⁾	13	-	μA
		T _A = 125 °C		13	-	mA
	V _R = 120 V	T _A = 25 °C		-	500	μA
		T _A = 125 °C		23	55	mA

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VF30120SG	UNIT
Typical thermal resistance	R _{θJC}	4.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
ITO-220AB	VF30120SG-M3/4W	1.75	4W	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

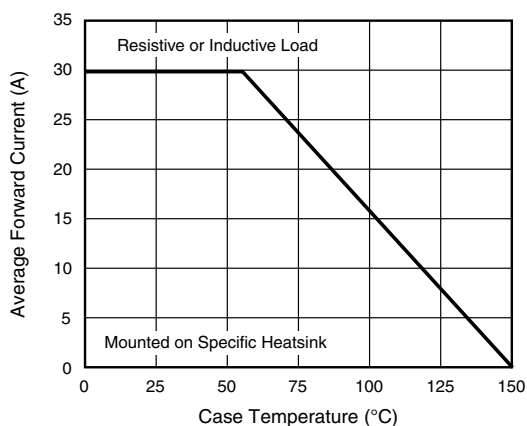


Fig. 1 - Maximum Forward Current Derating Curve

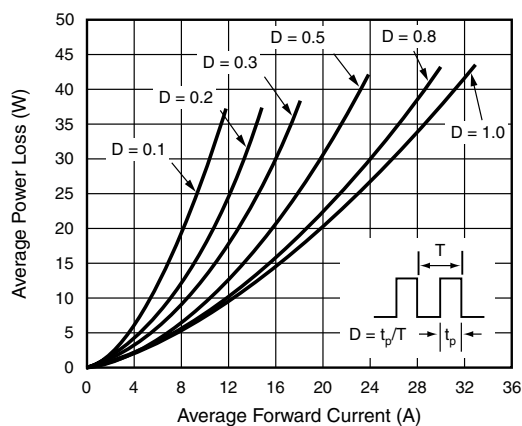


Fig. 2 - Forward Power Dissipation Characteristics

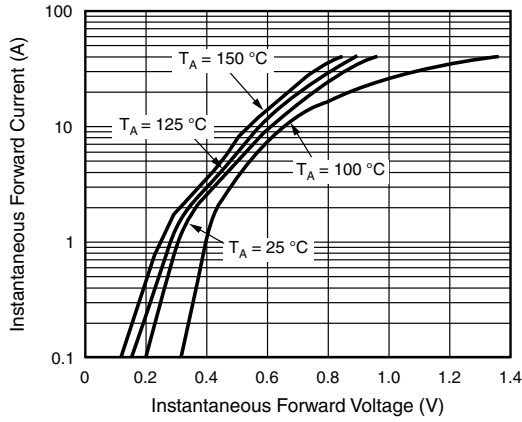


Fig. 3 - Typical Instantaneous Forward Characteristics

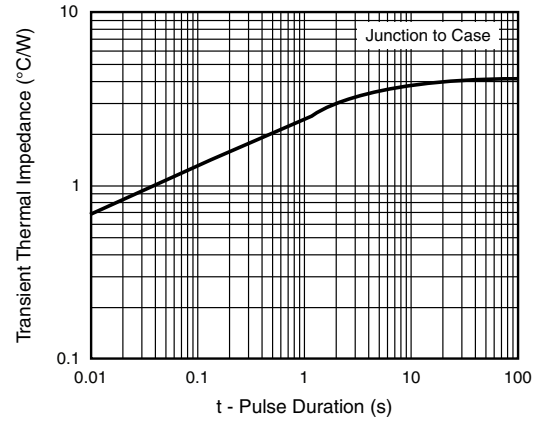


Fig. 5 - Typical Transient Thermal Impedance

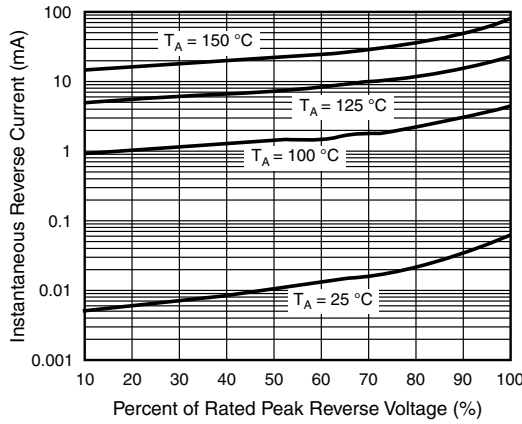


Fig. 4 - Typical Reverse Characteristics

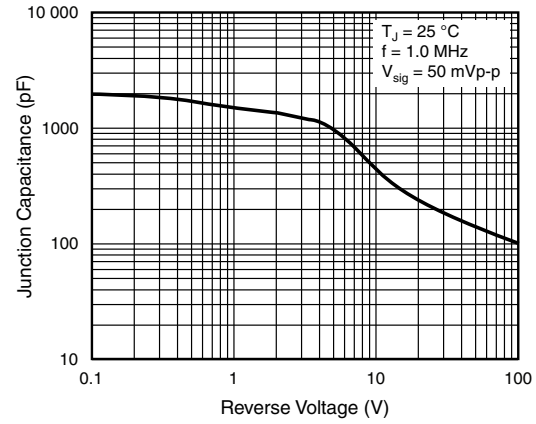
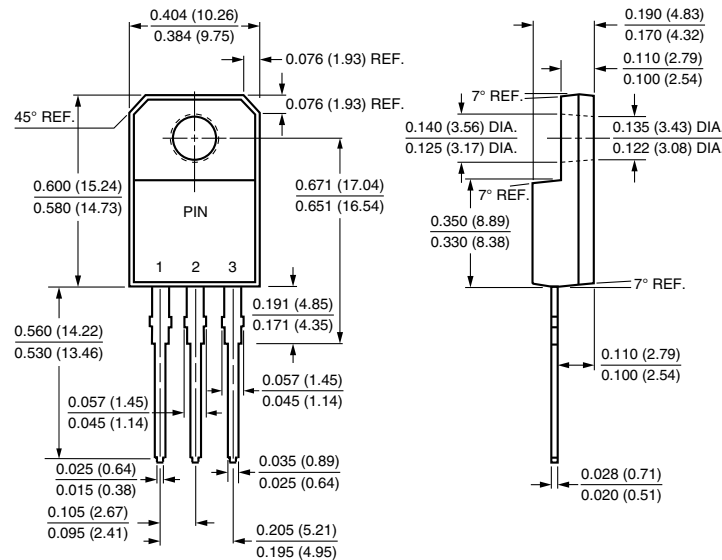


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

ITO-220AB





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