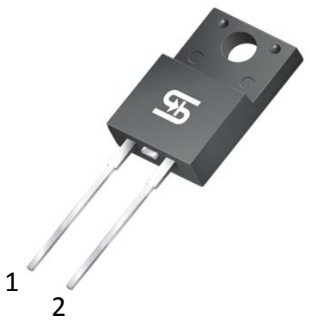
12A, 600V Isolated Ultrafast Rectifier

FEATURES

- Especially suited as boost diode on continuous mode power factor correctors
- Ideal Solution for hard switching condition
- High capability for high di/dt operation. Downsizing of mosfet and heatsink.
- High surge current capability
- High operation temperature to T_J 175°C
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition
- AEC-Q101 qualified (Green compound not involved)



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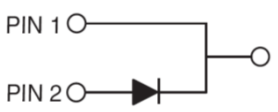


Pb-Free

RoHS COMPLIANT

DESCRIPTION

Especially suited as free wheeling or boost diode in continuous mode power factor correctors and other power switching applications.
The low stored charge and ultrafast soft recovery minimizes ringing and electrical noise in power switching circuits. The family drastically cuts losses in the associated MOSFET when run at high d_{IF}/dt.

MECHANICAL DATA

Case: ITO-220AC

Molding compound, UL flammability classification rating 94V-0

Part no. with suffix "H" means AEC-Q101 qualified

Packing code with suffix "G" means green compound (halogen-free)

Terminal: Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

Polarity: As marked

Mounting torque: 0.56 Nm max.

Weight: 1.7 g (approximately)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)				
PARAMETER	SYMBOL	UGF12JD		UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	600		V
Maximum RMS voltage	V_{RMS}	420		V
Maximum DC blocking voltage	V_{DC}	600		V
Maximum average forward rectified current	$I_{F(AV)}$	12		A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	100		A
Maximum instantaneous forward voltage (Note 1) I_F=12A	V_F	TYP	MAX	V
		3.1	-	
Maximum reverse current @ rated V_R T_J=25°C	I_R	0.5		µA
T_J=125°C		100		
Reverse recovery time	t_{rr}	TYP	MAX	
I_F=0.5A, I_R=1A, I_{RR}=0.25A, T_J=25°C		13	25	ns
I_F=1A, dI_F/dt=-50A/µs, V_R=30V, T_J=25°C		-	45	
Reverse recovery charges		TYP	MAX	
I_F=12A, dI_F/dt=-200A/µs, V_R=400V, T_J=125°C	Qrr	90	-	nC
	I_{RM}	3.8	4.6	A
Typical thermal resistance	$R_{\theta JC}$	2.4		°C/W
Operating junction temperature range	T_J	- 55 to +175		°C
Storage temperature range	T_{STG}	- 55 to +175		°C

Note 1: Pulse Test with PW=300µs, 1% Duty Cycle

ORDERING INFORMATION					
PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
UGF12JD	H	C0	G	ITO-220AC	50 / Tube

EXAMPLE					
PREFERRED P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
UGF12JDHC0	UGF12JD	H	C0		AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A=25°C unless otherwise noted)

FIG.1 FORWARD CURRENT DERATING CURVE

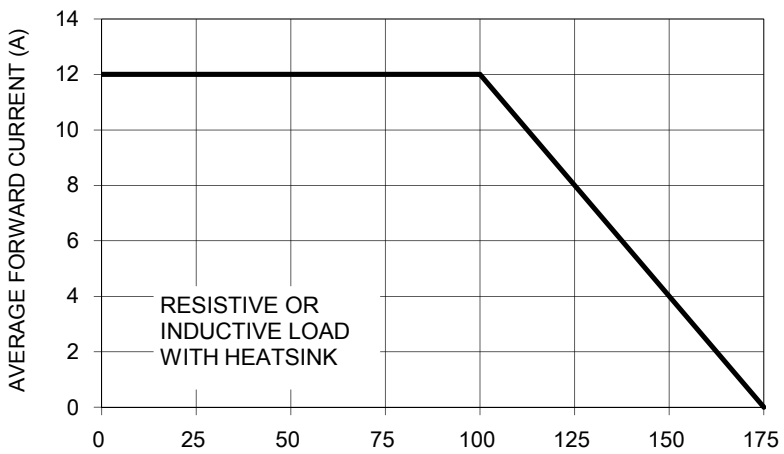


FIG. 2 TYPICAL REVERSE CHARACTERISTICS

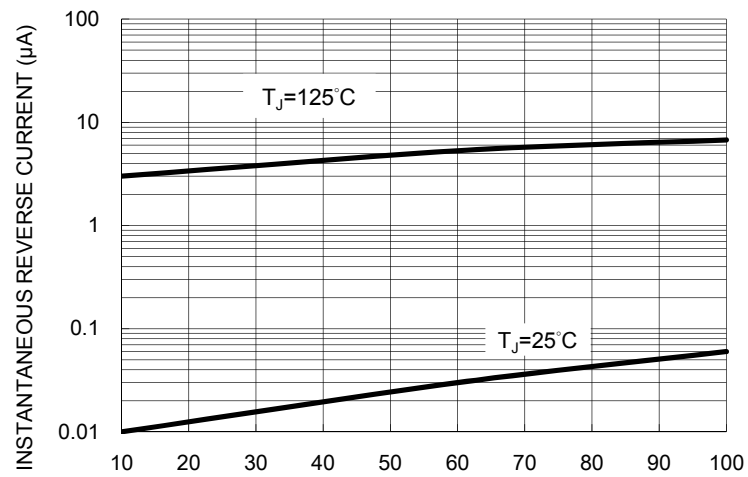


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

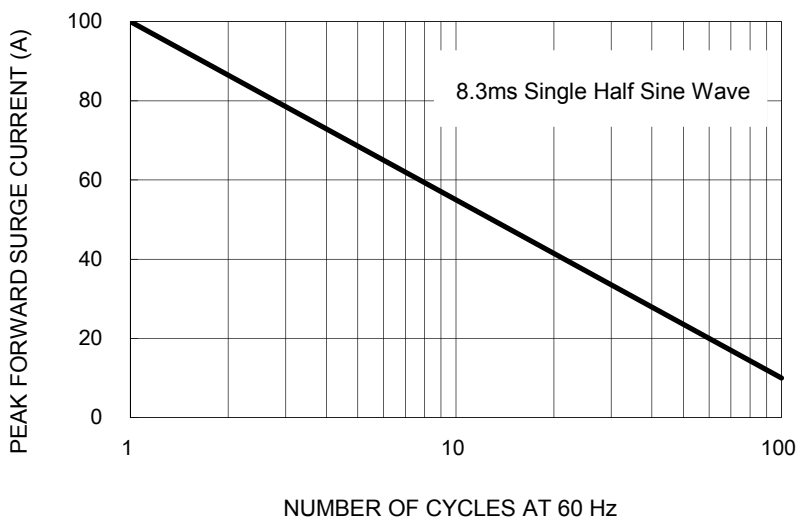


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

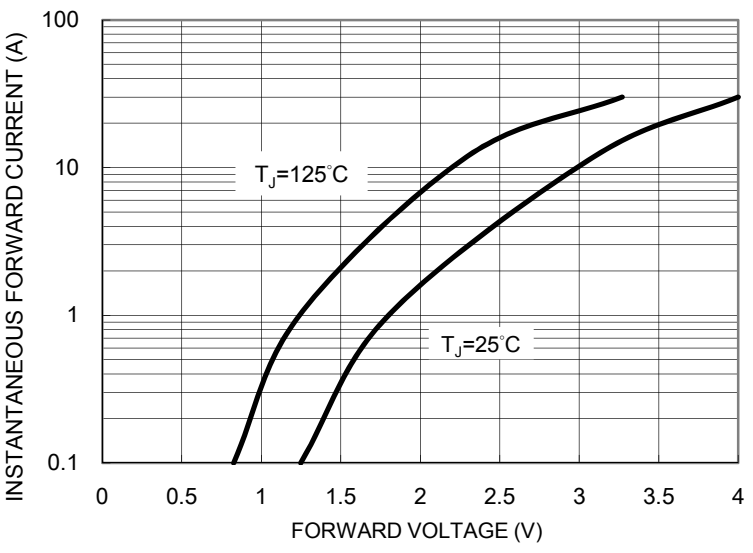
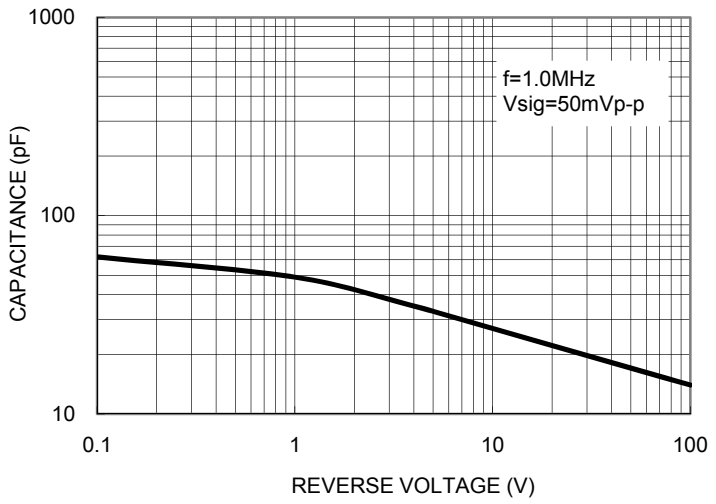


FIG. 5 TYPICAL JUNCTION CAPACITANCE



PACKAGE OUTLINE DIMENSIONS

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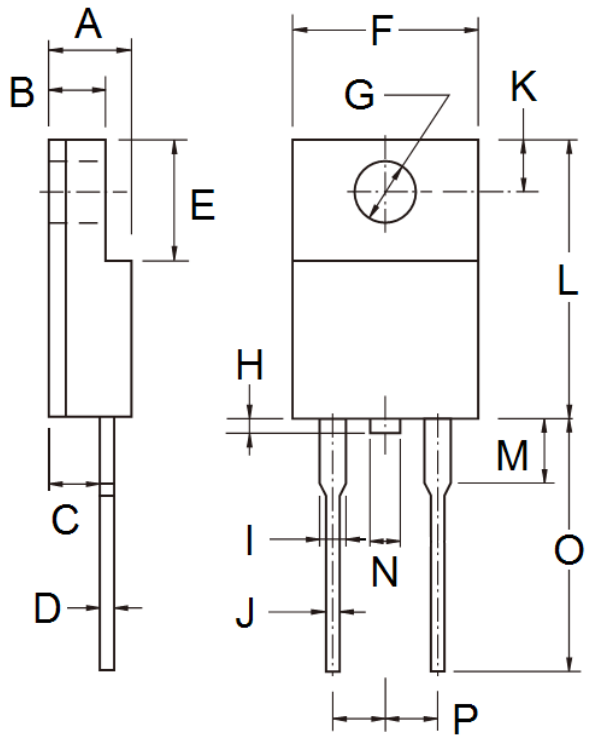

DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	4.30	4.70	0.169	0.185
B	2.50	3.10	0.098	0.122
C	2.30	2.90	0.091	0.114
D	0.46	0.76	0.018	0.030
E	6.30	6.90	0.248	0.272
F	9.60	10.30	0.378	0.406
G	3.00	3.40	0.118	0.134
H	0.00	1.60	0.000	0.063
I	0.95	1.45	0.037	0.057
J	0.50	0.90	0.020	0.035
K	2.40	3.20	0.094	0.126
L	14.80	15.50	0.583	0.610
M	-	4.10	-	0.161
N	-	1.80	-	0.071
O	12.60	13.80	0.496	0.543
P	4.95	5.20	0.195	0.205

MARKING DIAGRAM

P/N	= Specific Device Code
G	= Green Compound
YWW	= Date Code
F	= Factory Code

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