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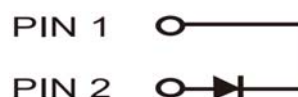
## 12A, 600V Isolated Ultrafast Rectifier

### 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
- AEC-Q101 qualified (Green compound not involved)



**ITO-220AC**



### 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 ( $T_A=25^\circ\text{C}$ 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 $V_R$ $T_J=25^\circ\text{C}$ $T_J=125^\circ\text{C}$	$I_R$	0.5		$\mu\text{A}$
		100		
Reverse recovery time	$t_{rr}$	TYP	MAX	ns
$I_F=0.5A, I_R=1A, I_{RR}=0.25A, T_J=25^\circ\text{C}$		13	25	
$I_F=1A, di_F/dt=-50A/\mu\text{s}, V_R=30V, T_J=25^\circ\text{C}$		-	45	
Reverse recovery charges	$Q_{rr}$	TYP	MAX	nC
$I_F=12A, di_F/dt=-200A/\mu\text{s}, V_R=400V, T_J=125^\circ\text{C}$		90	-	
	$I_{RM}$	3.8	4.6	A
Typical thermal resistance	$R_{\theta JC}$	2.4		$^\circ\text{C/W}$
Operating junction temperature range	$T_J$	- 55 to +175		$^\circ\text{C}$
Storage temperature range	$T_{STG}$	- 55 to +175		$^\circ\text{C}$

Note 1: Pulse test with  $PW=300\mu\text{s}$ , 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					
EXAMPLE P/N	PART NO.	PART NO. SUFFIX	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
UGF12JDHC0	UGF12JD	H	C0		AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

FIG.1 FORWARD CURRENT DERATING CURVE

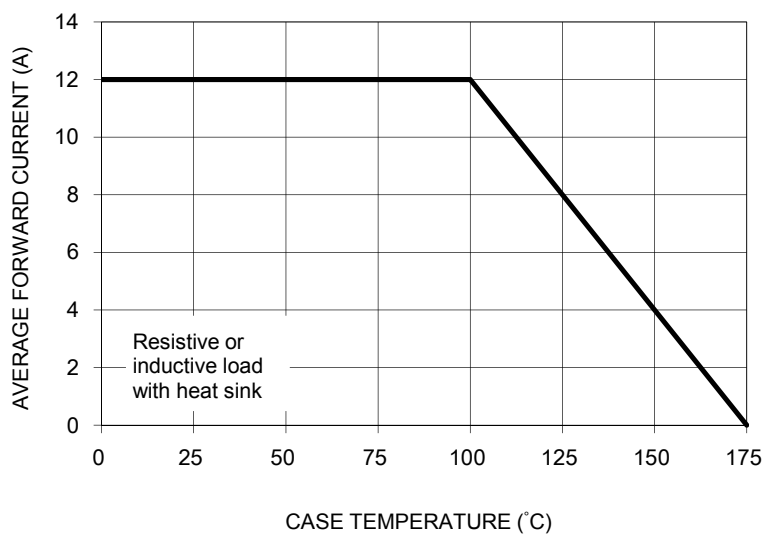


FIG. 2 TYPICAL REVERSE CHARACTERISTICS

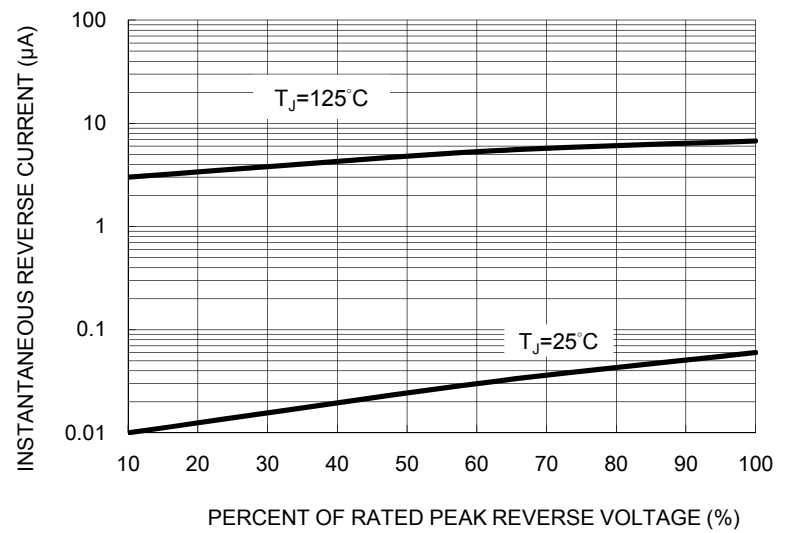


FIG. 3 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

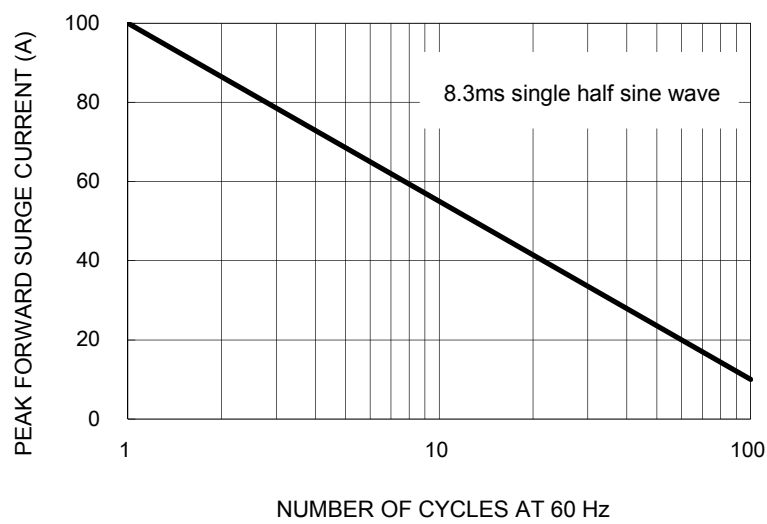


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

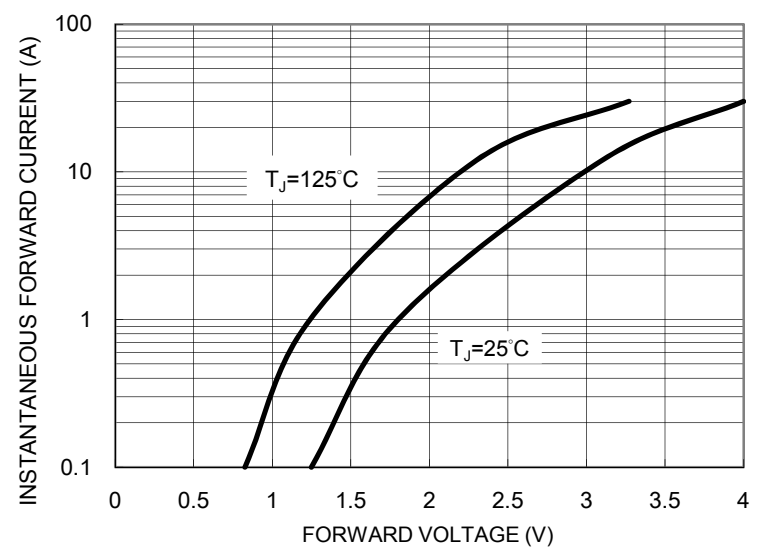
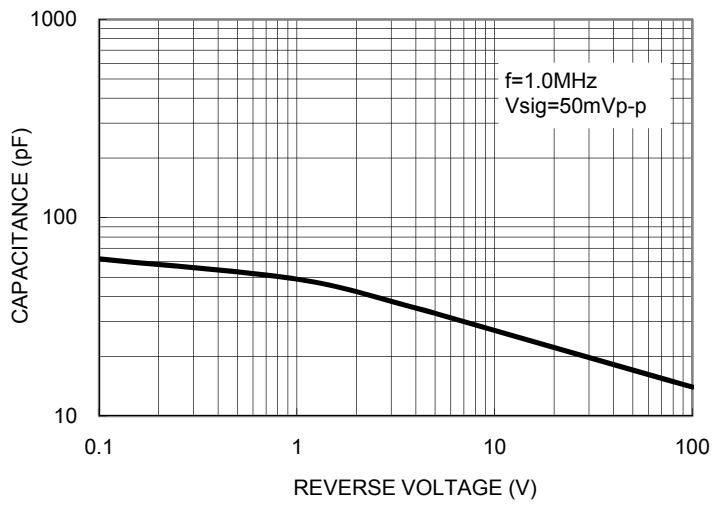
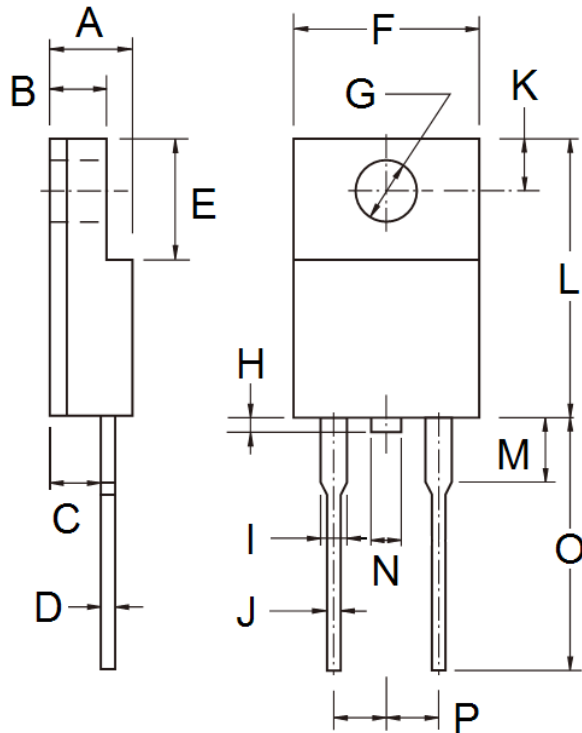


FIG. 5 TYPICAL JUNCTION CAPACITANCE



**PACKAGE OUTLINE DIMENSIONS**  
**ITO-220AC**



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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