

Glass Passivated Junction Plastic Controlled Avalanche Rectifier



FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Controlled avalanche characteristics
- Low forward voltage drop
- Low leakage current, I_R less than 0.1 μA
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes application.

MECHANICAL DATA

Case: DO-204AC, molded epoxy over glass body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS compliant, commercial grade
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.5 A
V_{RRM}	400 V to 800 V
P_{RM}	500 W
I_{FSM}	50 A
I_R	5.0 μA
V_F	1.1 V
T_J max.	175 °C

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

PARAMETER	SYMBOL	AGP15-400	AGP15-600	AGP15-800	UNIT
Maximum recurrent peak reverse voltage	V_{RRM}	400	600	800	V
Maximum RMS voltage	V_{RMS}	280	420	560	V
Maximum DC blocking voltage	V_{DC}	400	600	800	V
Maximum peak power dissipation in the avalanche region 20 μs pulse	P_{RM}	500			W
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C	I_{AV}	1.5			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50			A
Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 55$ °C	$I_{R(AV)}$	100			μA
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175			°C

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

PARAMETER	TEST CONDITIONS	SYMBOL	AGP15-400	AGP15-600	AGP15-800	UNIT
Minimum avalanche breakdown voltage	100 μA	V_{BR}	450	675	880	V
Maximum avalanche breakdown voltage	100 μA	V_{BR}	750	1000	1200	V
Maximum instantaneous forward voltage	1.5 A	V_F	1.1			V
Maximum reverse current at rated DC blocking voltage		I_R	5.0			μA
Typical reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $t_{rr} = 0.25\text{ A}$	t_{rr}	2.0			μs
Typical junction capacitance	4.0 V, 1 MHz	C_J	15			pF

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

PARAMETER	SYMBOL	AGP15-400	AGP15-600	AGP15-800	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	25			$^{\circ}\text{C/W}$

Note

⁽¹⁾ Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, P.C.B. mounted

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
AGP15-400-E3/54	0.425	54	4000	13" diameter paper tape and reel
AGP15-400-E3/73	0.425	73	2000	Ammo pack packaging
AGP15-400HE3/54 ⁽¹⁾	0.425	54	4000	13" diameter paper tape and reel
AGP15-400HE3/73 ⁽¹⁾	0.425	73	2000	Ammo pack packaging

Note

⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

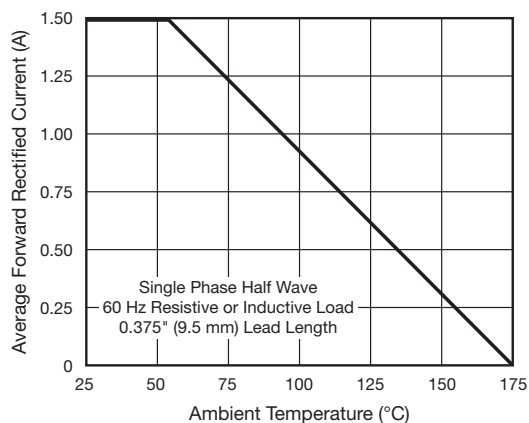


Fig. 1 - Maximum Forward Current Derating Curve

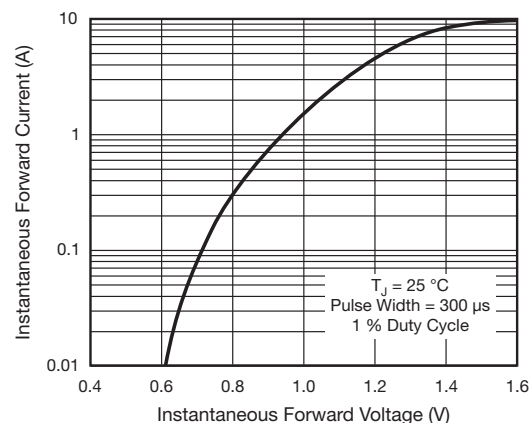


Fig. 2 - Typical Instantaneous Forward Characteristics

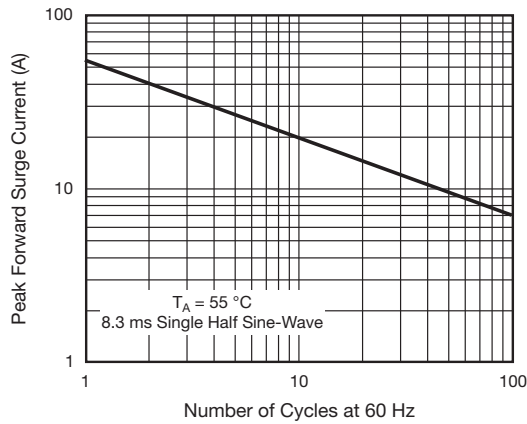


Fig. 3 - Maximum Non-repetitive Peak Forward Surge Current

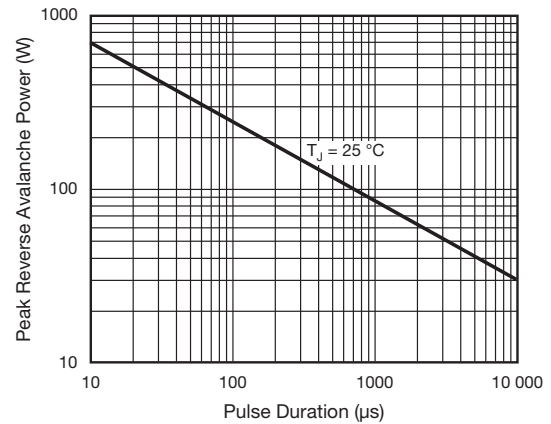


Fig. 5 - Typical Reverse Leakage Characteristics

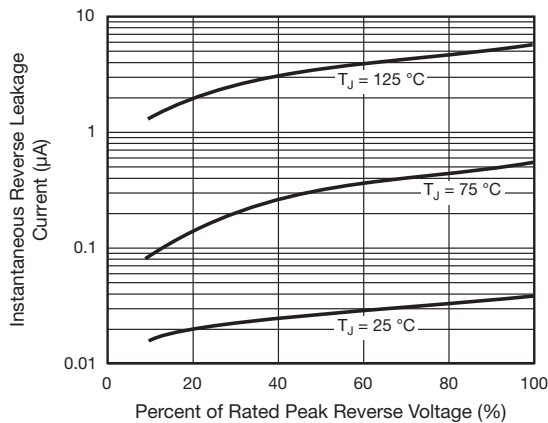
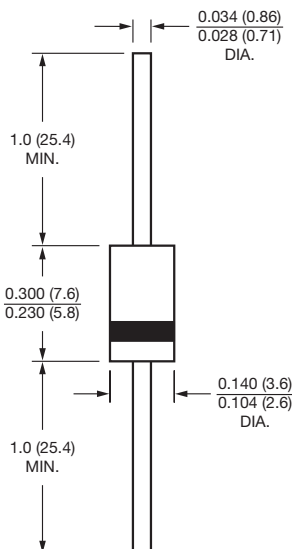


Fig. 4 - Maximum Non-repetitive Reverse Avalanche Power Dissipation

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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