

BYD77AA - BYD77GA

ULTRA FAST LOW-LOSS CONTROLLED AVALANCHE RECTIFIERS

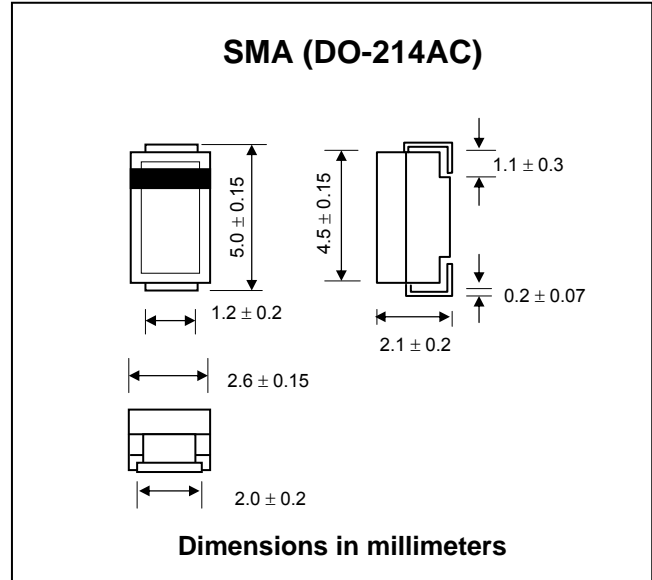
PRV : 50 - 400 Volts
I_o : 2.0 Amperes

FEATURES :

- * Glass passivated junction chip
- * High maximum operating temperature
- * Low leakage current
- * Excellent stability
- * Smallest surface mount rectifier outline
- * **Pb / RoHS Free**

MECHANICAL DATA :

- * Case : SMA Molded plastic
- * Epoxy : UL94V-O rate flame retardant
- * Lead : Lead Formed for Surface Mount
- * Polarity : Color band denotes cathode end
- * Mounting position : Any
- * Weight : 0.067 gram



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

RATING	SYMBOL	BYD 77AA	BYD 77BA	BYD 77CA	BYD 77DA	BYD 77EA	BYD 77FA	BYD 77GA	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	50	100	150	200	250	300	400	V
Maximum Continuous Reverse Voltage	V_R	50	100	150	200	250	300	400	V
Min. Reverse Avalanche Breakdown Voltage @ $I_R = 0.1$ mA	$V_{(BR)R-min}$	55	110	165	220	275	330	440	V
Maximum Average Forward Current	$I_{F(AV)}$	2.0 ⁽¹⁾				1.85 ⁽¹⁾			A
		0.85 ⁽²⁾				0.80 ⁽²⁾			
Maximum Non-Repetitive Peak Forward Surge Current (Note 3)	I_{FSM}	25							A
Maximum Repetitive Peak Forward Current at $T_{tp} = 105$ °C	I_{FRM}	15				13			A
Maximum Forward Voltage at $I_F = 1.0$ A ; $T_J = 25$ °C	V_F	0.98				1.05			V
Maximum Reverse Current at $V_R = V_{RRMmax}$ $T_J = 25$ °C $T_J = 165$ °C	I_R	1.0							μ A
	$I_{R(H)}$	100							μ A
Maximum Reverse Recovery Time (Note 4)	T_{rr}	25				50			ns
Thermal Resistance from Junction to Tie-Point	$R_{th j-tp}$	30							K / W
Thermal Resistance from Junction to Ambient (Note 5)	$R_{th j-a}$	150							K / W
Junction Temperature Range	T_J	- 65 to + 175							°C
Storage Temperature Range	T_{STG}	- 65 to + 175							°C

Notes :

- (1) $T_{tp} = 105$ °C; see Fig. 1 and 2; averaged over any 20 ms period; see also Fig.5 and 6
- (2) $T_{amb} = 60$ °C; PCB mounting ; see Fig. 3 and 4; averaged over any 20 ms period; see also Fig.5 and 6
- (3) $t = 10$ ms half sine wave; $T_J = T_{jmax}$ prior to surge; $V_R = V_{RRMmax}$
- (4) Reverse Recovery Test Conditions : $I_F = 0.5$ A, $I_R = 1.0$ A, $I_{rr} = 0.25$ A.
- (5) Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer ≤ 40 μ m.

RATING AND CHARACTERISTIC CURVES (BYD77AA - BYD77GA)

FIG.1 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF TIE-POINT TEMPERATURE

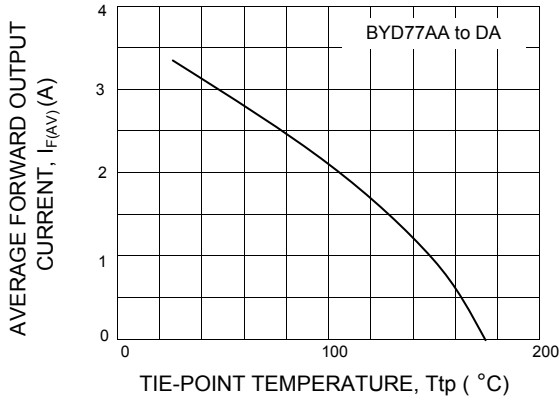


FIG.2 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF TIE-POINT TEMPERATURE

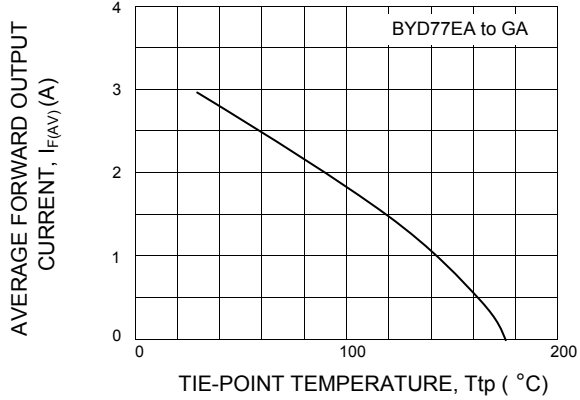


FIG.3 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

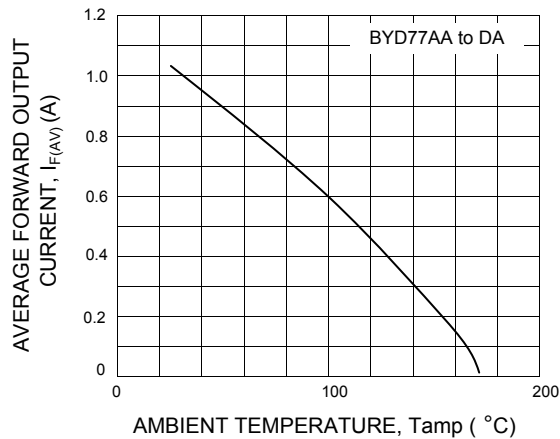


FIG.4 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

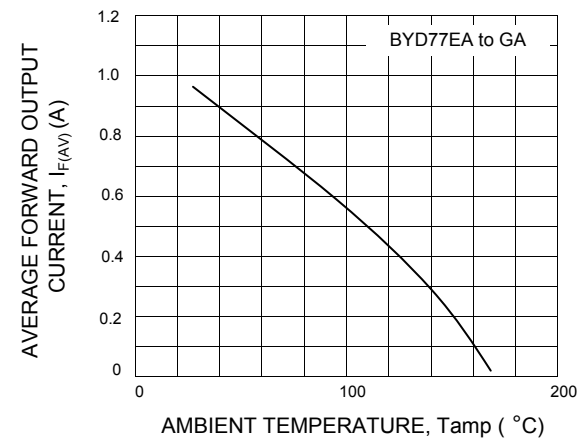


FIG.5 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT

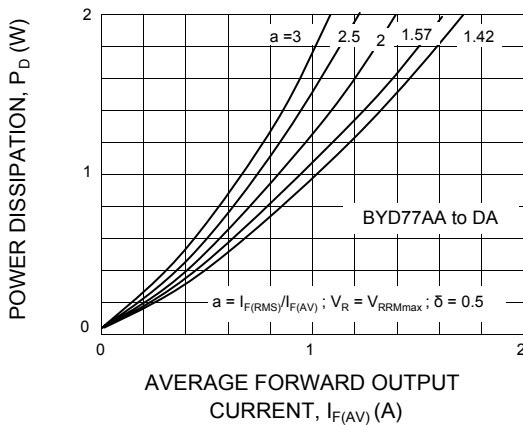
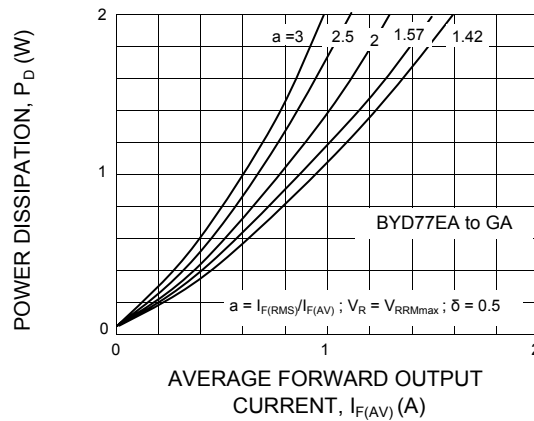


FIG.6 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT



RATING AND CHARACTERISTIC CURVES (BYD77AA- BYD77GA)

FIG.7 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

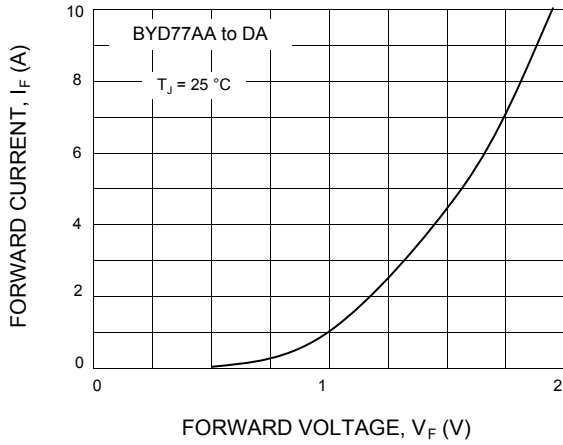


FIG.8 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

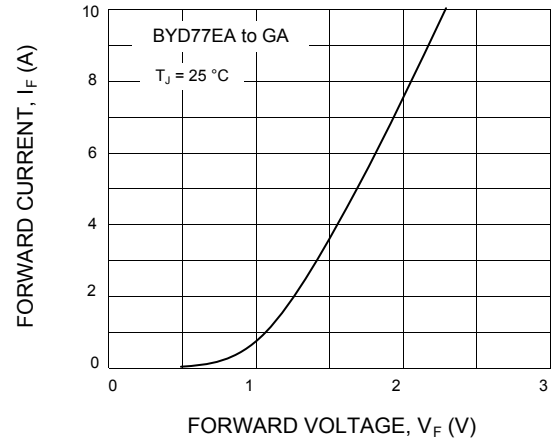


FIG.9 - REVERSE CURRENT AS FUNCTION OF JUNCTION TEMPERATURE

