

BYD77AA - BYD77GA

ULTRA FAST LOW-LOSS CONTROLLED AVALANCHE RECTIFIERS

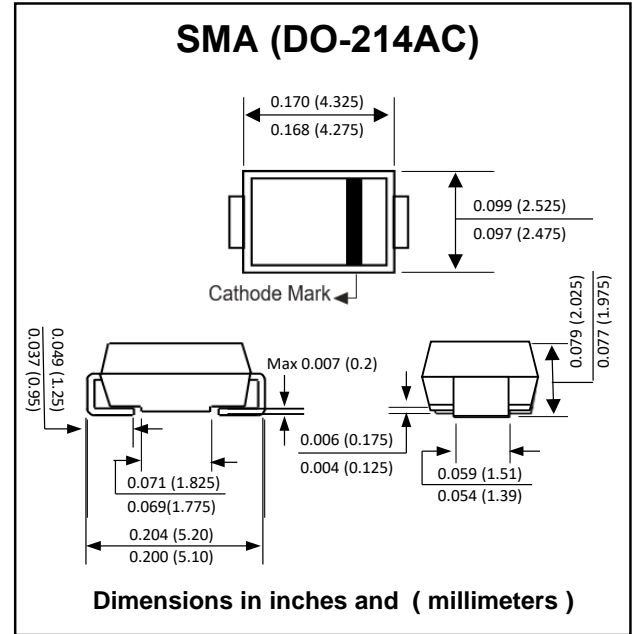
PRV : 50 - 400 Volts
Io : 2.0 Amperes

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 @ $I_R = 0.1 \text{ mA}$	$V_{(BR)R-min}$	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 $T_{tp} = 105 \text{ °C}$	I_{FRM}	15				13				A
Maximum Forward Voltage at $I_F = 1.0 \text{ A}$; $T_J = 25 \text{ °C}$	V_F	0.98				1.05				V
Maximum Reverse Current at $V_R = V_{RRMmax}$; $T_J = 25 \text{ °C}$ $T_J = 165 \text{ °C}$	I_R	1.0								μA
	$I_{R(H)}$	100								μA
Maximum Reverse Recovery Time (Note 4)	T_{rr}	25				50				ns
Thermal Resistance from Junction to Tie-Point	$R_{th \text{ j-tp}}$	30								K / W
Thermal Resistance from Junction to Ambient (Note 5)	$R_{th \text{ j-a}}$	150								K / W
Junction Temperature Range	T_J	- 65 to + 175								°C
Storage Temperature Range	T_{STG}	- 65 to + 175								°C

Notes :

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

RATING AND CHARACTERISTIC CURVES (BYD77AA - BYD77GA)

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

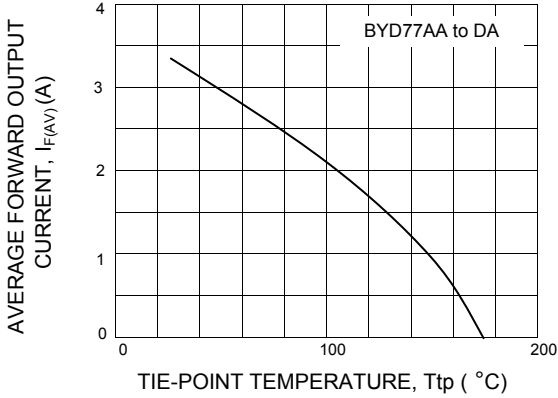


FIG.2 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF TIE-POINT TEMPERATURE

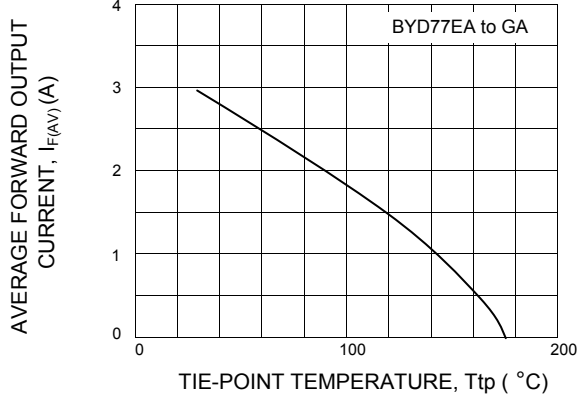


FIG.3 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

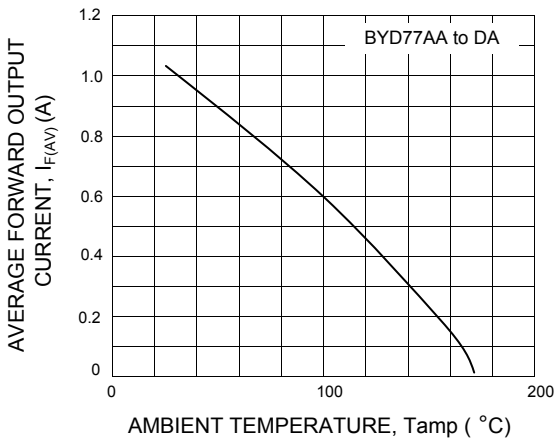


FIG.4 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

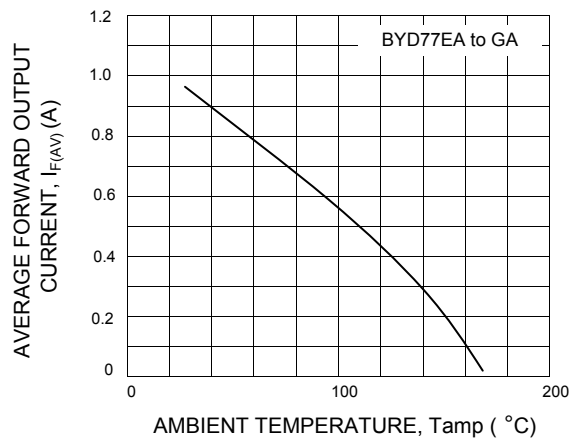


FIG.5 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT

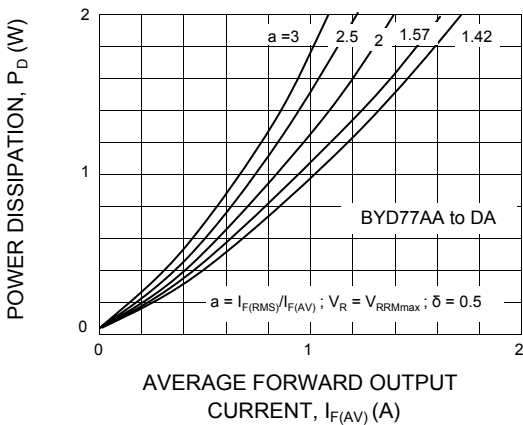
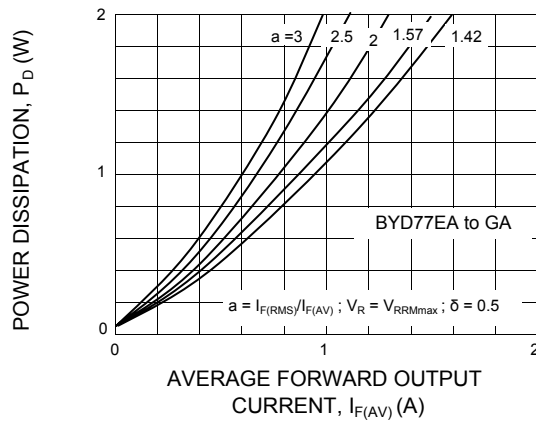


FIG.6 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT



RATING AND CHARACTERISTIC CURVES (BYD77AA- BYD77GA)

FIG.7 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

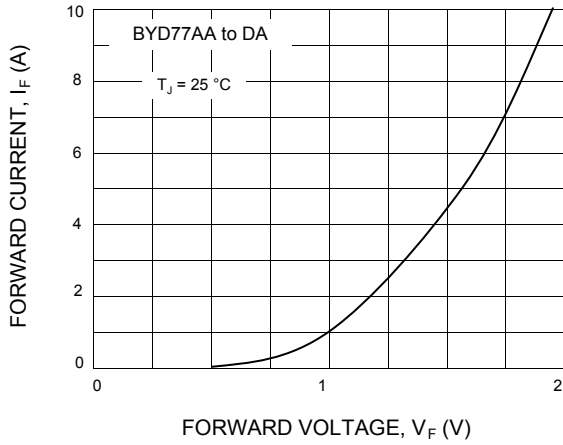


FIG.8 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

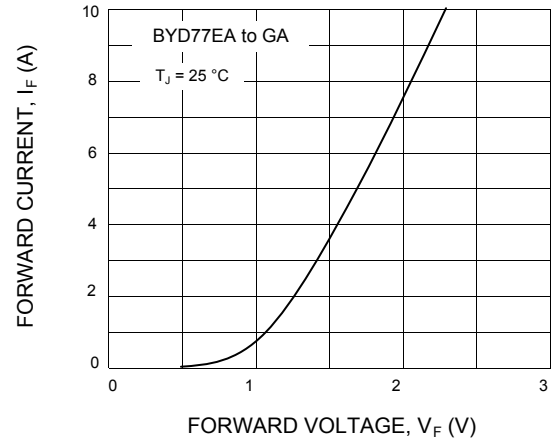


FIG.9 - REVERSE CURRENT AS FUNCTION OF JUNCTION TEMPERATURE

