

BYD57DA - BYD57VA

ULTRA-FAST SOFT-RECOVERY CONTROLLED AVALANCHE RECTIFIERS

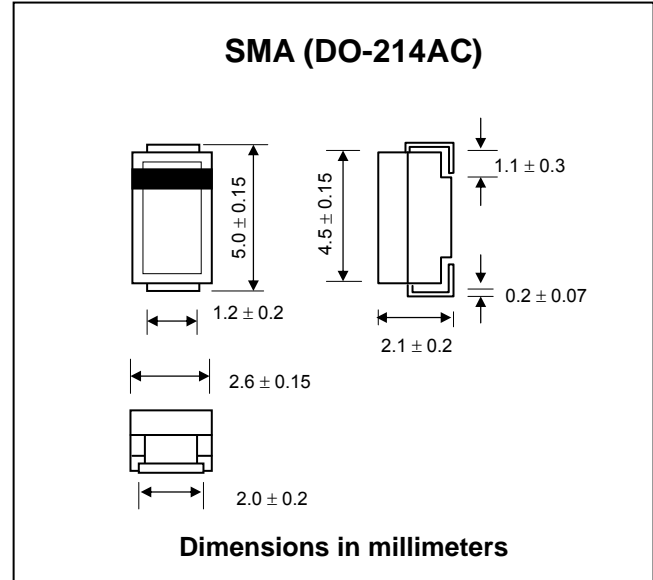
PRV : 200 - 1400 Volts
Io : 1.0 - 1.2 Amperes

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 57DA	BYD 57GA	BYD 57JA	BYD 57KA	BYD 57MA	BYD 57UA	BYD 57VA	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	200	400	600	800	1000	1200	1400	V
Maximum Continuous Reverse Voltage	V_R	200	400	600	800	1000	1200	1400	V
Min. Reverse Avalanche Breakdown Voltage @ $I_R = 0.1$ mA	$V_{(BR)R-min}$	300	500	700	900	1100	1300	1500	V
Maximum Average Forward Current	$I_{F(AV)}$	1.0 ⁽¹⁾				1.2 ⁽¹⁾			A
Maximum Non-Repetitive Peak Forward Surge Current (Note 3)	I_{FSM}	0.4 ⁽²⁾				5.0			A
Maximum Repetitive Peak Forward Current at $T_{tp} = 85$ °C	I_{FRM}	8.5				11			A
Non-repetitive Peak Reverse Avalanche energy (Note 4)	E_{RSM}	10							mJ
Maximum Forward Voltage at $I_F = 1.0$ A ; $T_J = 25$ °C	V_F	3.6				2.3			V
Maximum Reverse Current at $V_R = V_{RRMmax}$ $T_J = 25$ °C $T_J = 165$ °C	I_R	5.0							µA
	$I_{R(H)}$	100							µA
Maximum Reverse Recovery Time (Note 5)	T_{rr}	30		75		150			ns
Thermal Resistance from Junction to Tie-Point	$R_{th j-tp}$	30							K / W
Thermal Resistance from Junction to Ambient (Note 6)	$R_{th j-a}$	150							K / W
Junction Temperature Range	T_J	- 65 to + 175							°C
Storage Temperature Range	T_{STG}	- 65 to + 175							°C

Notes :

- (1) $T_{tp} = 85$ °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) $L = 120$ mH ; $T_J = T_{JMAX}$ prior to surge ; inductive load switched off.
- (5) Reverse Recovery Test Conditions : $I_F = 0.5$ A, $I_R = 1.0$ A, $I_{rr} = 0.25$ A.
- (6) Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer ≥ 40 µm.

RATING AND CHARACTERISTIC CURVES (BYD57DA - BYD57VA)

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

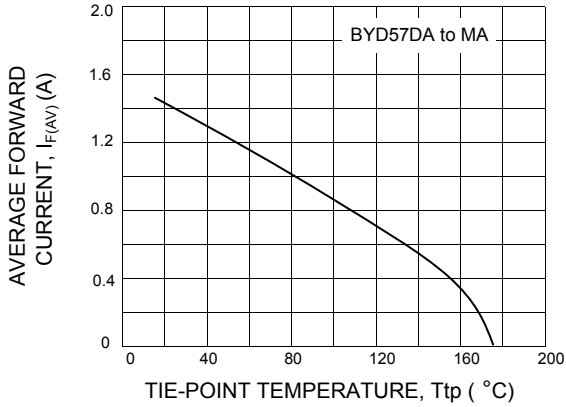


FIG.2 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF TIE-POINT TEMPERATURE

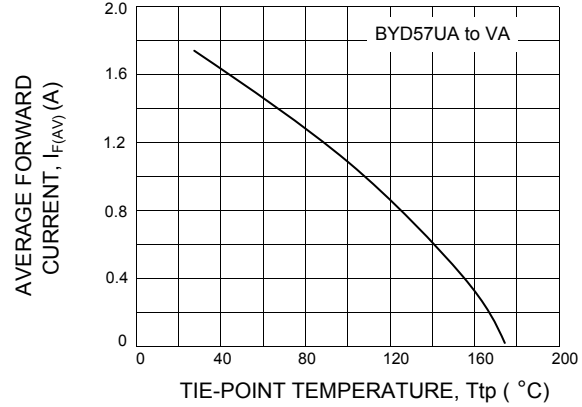


FIG.3 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

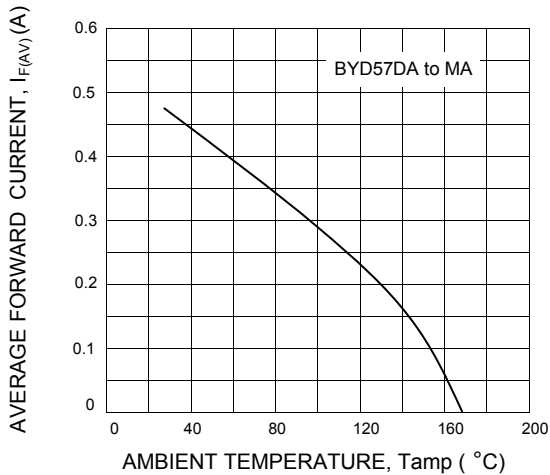


FIG.4 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

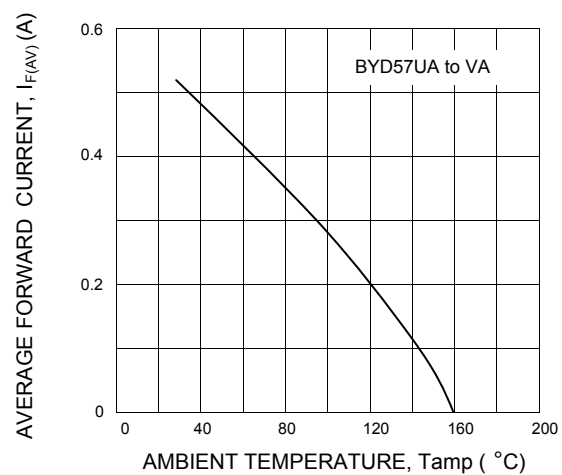


FIG.5 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT

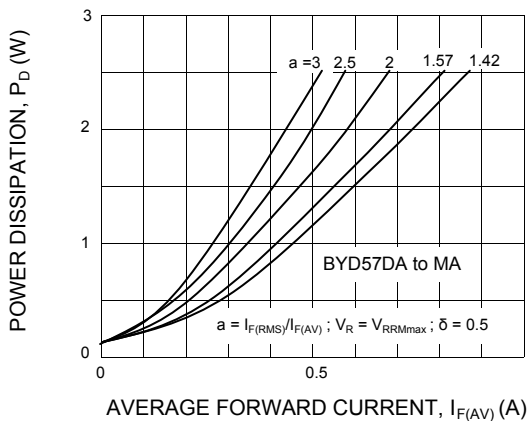
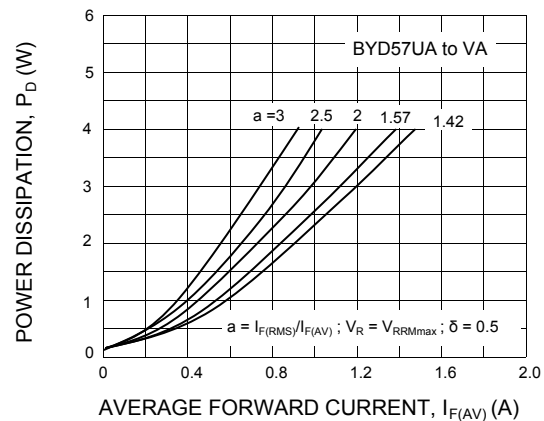


FIG.6 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT



RATING AND CHARACTERISTIC CURVES (BYD57DA - BYD57VA)

FIG.7 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

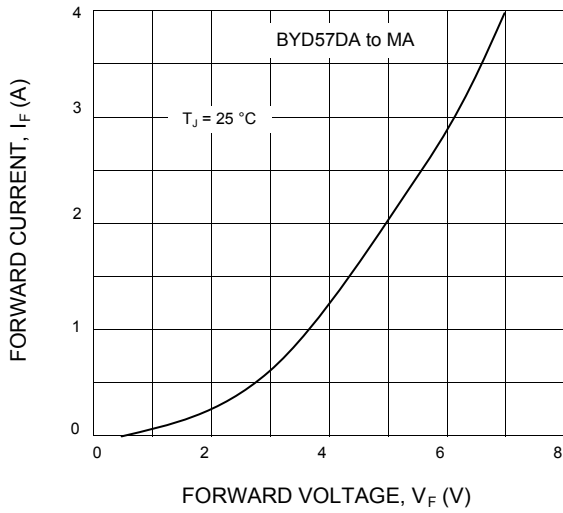


FIG.8 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

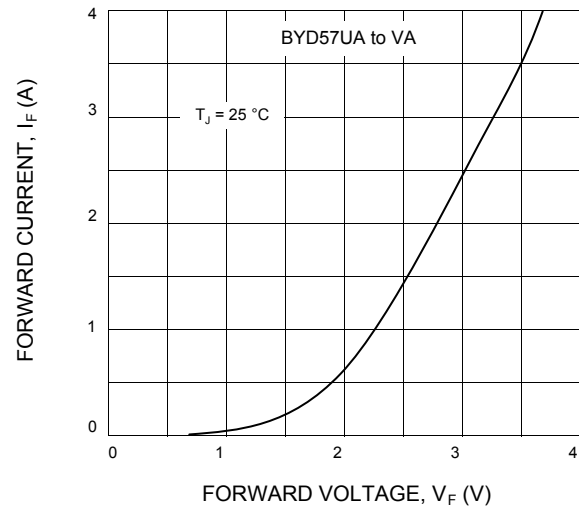


FIG.9 - REVERSE CURRENT AS FUNCTION OF JUNCTION TEMPERATURE

