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BYD57DA - BYD57VA

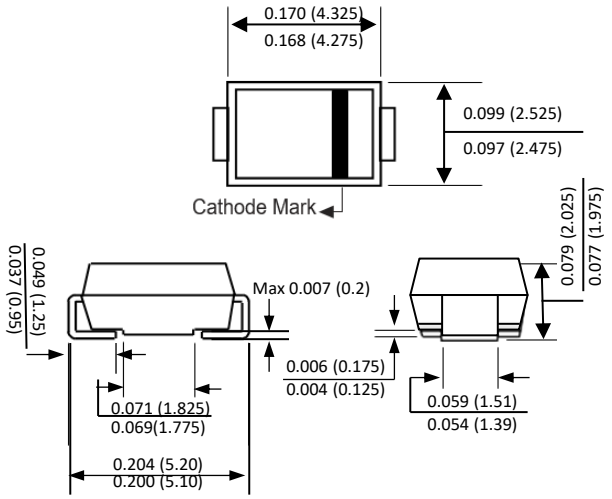
ULTRA-FAST SOFT-RECOVERY CONTROLLED AVALANCHE RECTIFIERS

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

SMA (DO-214AC)



Dimensions in inches and (millimeters)

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
		0.4 (2)							
Maximum Non-Repetitive Peak Forward Surge Current (Note 3)	I_{FSM}	5.0							A
Maximum Repetitive Peak Forward Current at Ttp = 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	I_R	5.0							µA
T_J = 165 °C	$I_{R(H)}$	100							µA
Maximum Reverse Recovery Time (Note 5)	Trr	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) Ttp = 85 °C; see Fig. 1and 2; averaged over any 20 ms period; see also Fig.5 and 6.

(2) Tamb = 60 °C; PCB mounting ; see Fig. 3 and 4; averaged over any 20 ms period; see also Fig.5 and 6.

(3) t=10ms half sine wave; Tj = Tjmax 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, Irr = 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

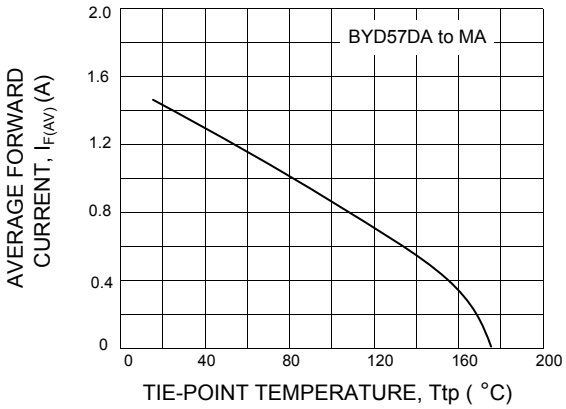


FIG.2 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF TIE-POINT TEMPERATURE

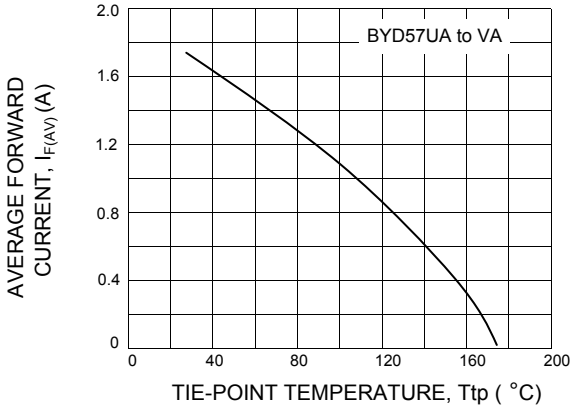


FIG.3 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

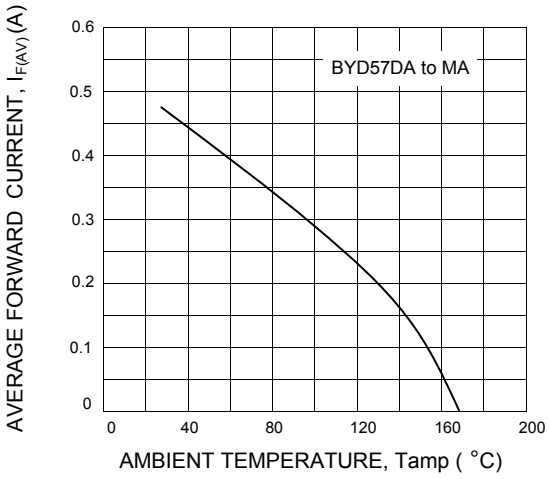


FIG.4 - MAXIMUM PERMISSIBLE AVERAGE FORWARD CURRENT AS A FUNCTION OF AMBIENT TEMPERATURE

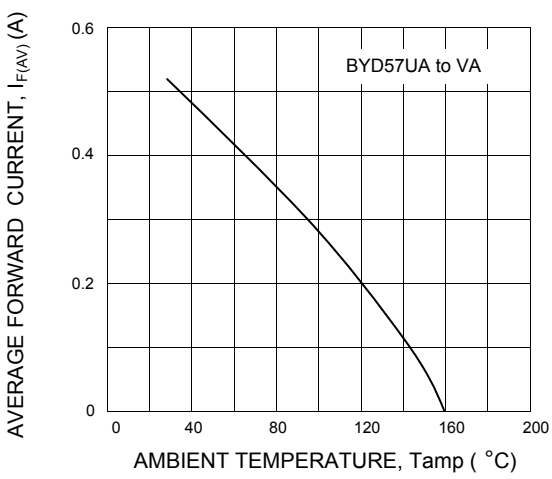


FIG.5 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT

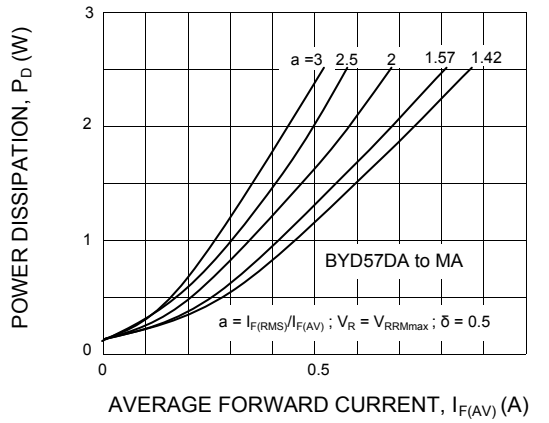
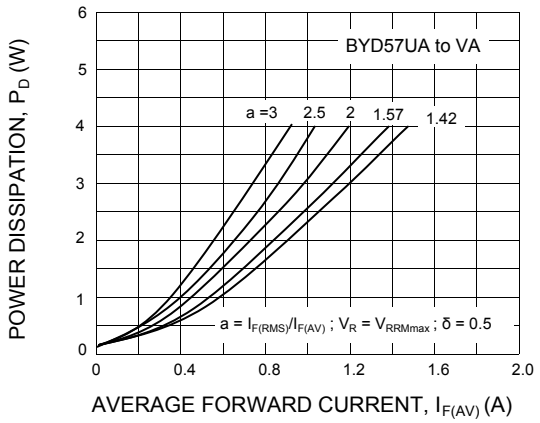


FIG.6 - MAXIMUM STEADY STATE POWER DISSIPATION AS A FUNCTION OF AVERAGE FORWARD CURRENT



RATING AND CHARACTERISTIC CURVES (BYD57DA - BYD57VA)

FIG.7 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

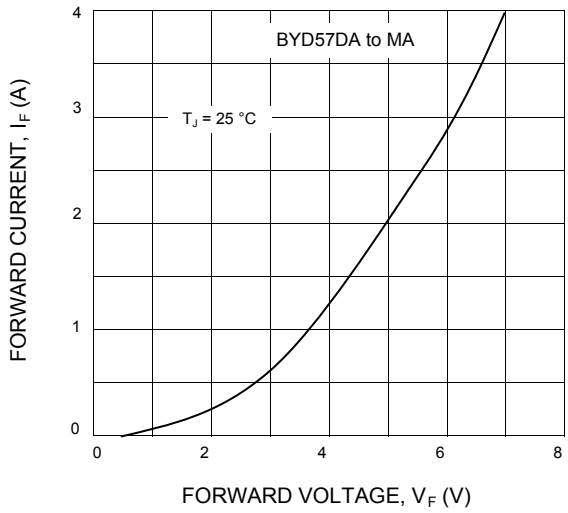


FIG.8 - FORWARD CURRENT AS FUNCTION OF FORWARD VOLTAGE

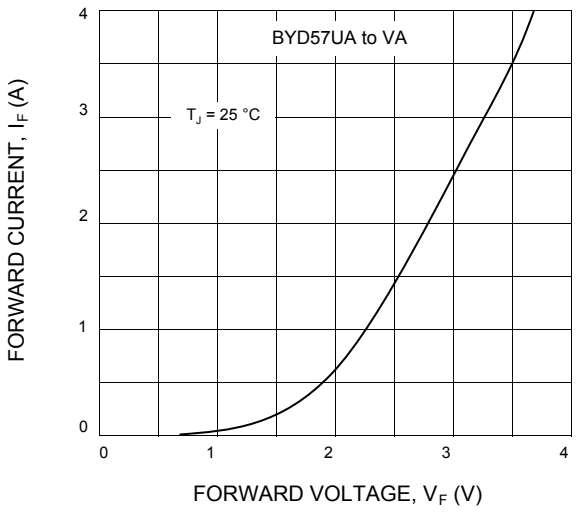


FIG.9 - REVERSE CURRENT AS FUNCTION OF JUNCTION TEMPERATURE