TAYCHIPST

Controlled avalanche rectifiers

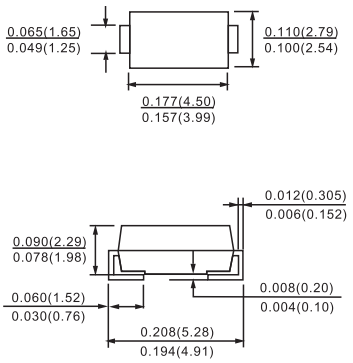
BYG50D THRU BYG50M

200V-1000V 0.7A-2.1A

FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- UL 94V-O classified plastic package
- Shipped in 12 mm embossed tape.

DO-214AC(SMA)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage				
	BYG50D		–	200	V
	BYG50G		–	400	V
	BYG50J		–	600	V
	BYG50K		–	800	V
	BYG50M		–	1000	V
V_R	continuous reverse voltage				
	BYG50D		–	200	V
	BYG50G		–	400	V
	BYG50J		–	600	V
	BYG50K		–	800	V
	BYG50M		–	1000	V
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; T_{tp} = 100 °C; see Fig.2	–	2.1	A
		averaged over any 20 ms period; Al_2O_3 PCB mounting (see Fig.7); T_{amb} = 60 °C; see Fig.3	–	1.0	A
		averaged over any 20 ms period; epoxy PCB mounting (see Fig.7); T_{amb} = 60 °C; see Fig.3	–	0.7	A
I_{FSM}	non-repetitive peak forward current	t = 10 ms half sinewave; $T_j = T_{j\,max}$ prior to surge; $V_R = V_{RRMmax}$	–	30	A

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
E_{RSM}	non-repetitive peak reverse avalanche energy	L = 120 mH; $T_j = T_{j\ max}$ prior to surge; inductive load switched off			
	BYG50D to J		–	10	mJ
	BYG50K and M		–	7	mJ
T_{stg}	storage temperature		–65	+175	°C
T_j	junction temperature	see Fig.4	–65	+175	°C

ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	I_F = 1 A; $T_j = T_{j\ max;}$ see Fig.5	–	–	0.85	V
		I_F = 1 A; see Fig.5	–	–	1.00	V
$V_{(BR)R}$	reverse avalanche breakdown voltage	I_R = 0.1 mA				
	BYG50D		300	–	–	V
	BYG50G		500	–	–	V
	BYG50J		700	–	–	V
	BYG50K		900	–	–	V
	BYG50M		1100	–	–	V
I_R	reverse current	$V_R = V_{RRMmax}$; see Fig.6	–	–	1	µA
		$V_R = V_{RRMmax}$; T_j = 165 °C; see Fig.6	–	–	100	µA
t_{rr}	reverse recovery time	when switched from I_F = 0.5 A to I_R = 1 A; measured at I_R = 0.25 A; see Fig.8	–	2	–	µs

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}tp}$	thermal resistance from junction to tie-point		25	K/W
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	100	K/W
		note 2	150	K/W

Notes

1. Device mounted on Al_2O_3 printed-circuit board, 0.7 mm thick; thickness of copper ≥35 µm, see Fig.7.
2. Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper ≥40 µm, see Fig.7.
   For more information please refer to the *"General Part of associated Handbook"*.

RATINGS AND CHARACTERISTIC CURVES BYG50D THRU BYG50M

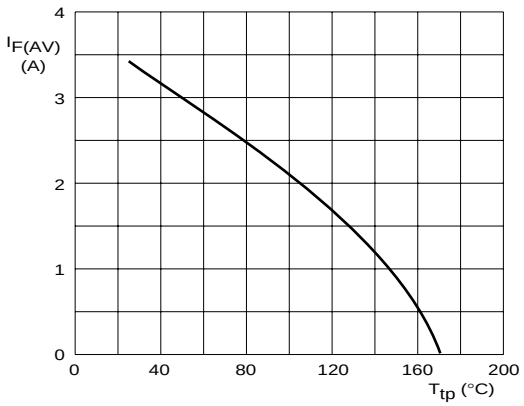


Fig.1 Maximum permissible average forward current as a function of tie-point temperature

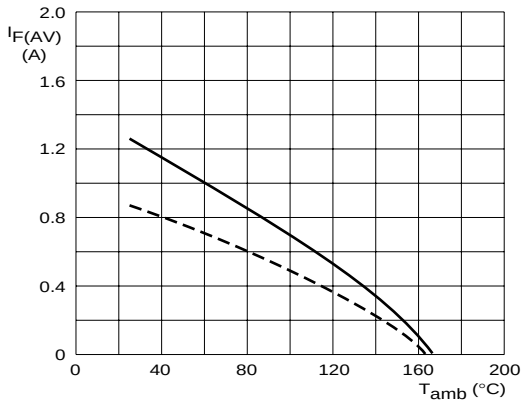


Fig.2 Maximum permissible average forward current as a function of ambient temperature

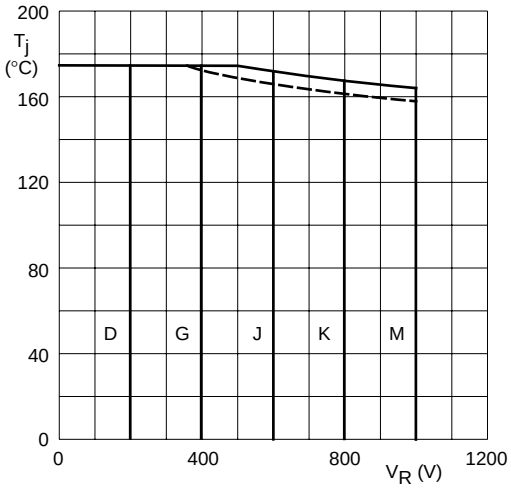


Fig.3 Maximum permissible junction temperature as a function of reverse voltage.

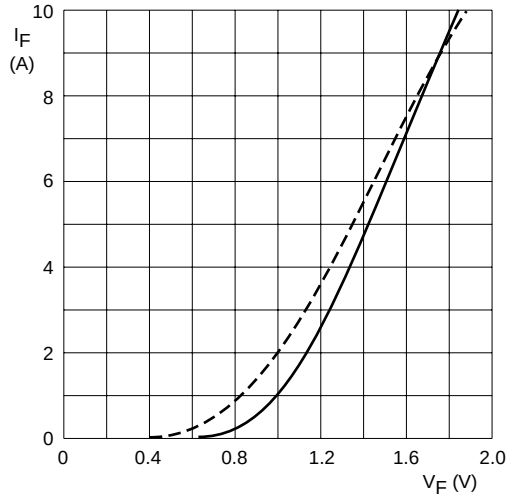


Fig. 4 Forward current as a function of forward voltage; maximum values.

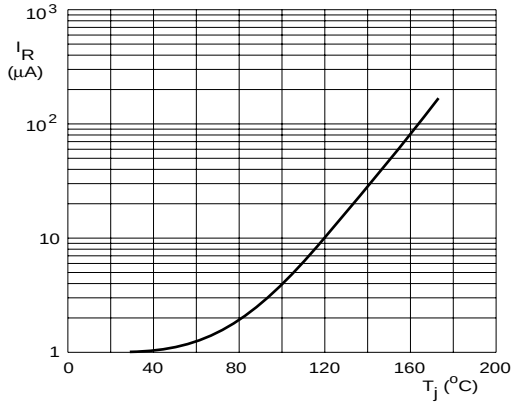


Fig.5 Reverse current as a function of junction temperature; maximum values.