

Silicon Diode

BYG60K

800V/650mA

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Fast soft-recovery controlled avalanche rectifiers

BYG60 series

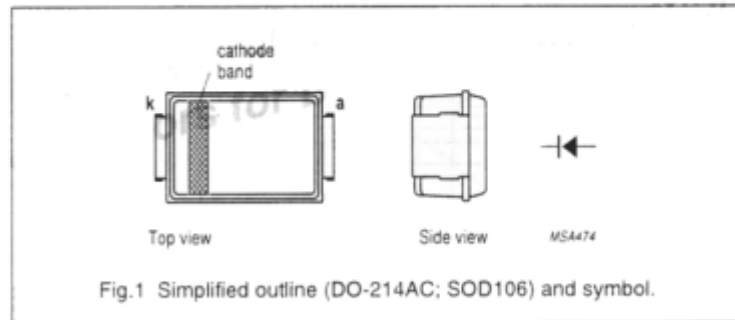
FEATURES

- 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.

DESCRIPTION

DO-214AC surface mountable package with glass passivated chip.

The well-defined void-free case is of a transfer-moulded thermo-setting plastic.



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{RRM}	repetitive peak reverse voltage		-	200	V
	BYG60D		-	400	V
	BYG60G		-	600	V
	BYG60J		-	800	V
	BYG60M		-	1000	V
V_R	continuous reverse voltage		-	200	V
	BYG60D		-	400	V
	BYG60G		-	600	V
	BYG60J		-	800	V
	BYG60M		-	1000	V
$I_{F(AV)}$	average forward current	averaged over any 20 ms period; $T_{ip} = 100\text{ }^\circ\text{C}$; see Fig.2	-	1.90	A
		averaged over any 20 ms period; Al_2O_3 PCB mounting (see Fig.7); $T_{amb} = 60\text{ }^\circ\text{C}$; see Fig.3	-	0.90	A
		averaged over any 20 ms period; epoxy PCB mounting (see Fig.7); $T_{amb} = 60\text{ }^\circ\text{C}$; see Fig.3	-	0.65	A
I_{FSM}	non-repetitive peak forward current	$t = 10\text{ ms}$ half sine wave; $T_j = T_{j,max}$ prior to surge; $V_R = V_{RRMmax}$	-	25	A

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SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
E_{RSM}	non-repetitive peak reverse avalanche energy BYG60D to J BYG60K and M	L = 120 mH; $T_j = T_{j,max}$ prior to surge; inductive load switched off	-	10	mJ
			-	7	mJ
T_{stg}	storage temperature		-65	+175	°C
T_j	junction temperature	see Fig.4	-65	+175	°C

ELECTRICAL CHARACTERISTICS
 $T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_F	forward voltage	$I_F = 1\text{ A}$; $T_j = T_{j,max}$; see Fig.5	-	-	0.98	V
		$I_F = 1\text{ A}$; see Fig.5	-	-	1.20	V
$V_{(BR)R}$	reverse avalanche breakdown voltage BYG60D BYG60G BYG60J BYG60K BYG60M	$I_R = 0.1\text{ mA}$	300	-	-	V
			500	-	-	V
			700	-	-	V
			900	-	-	V
			1100	-	-	V
I_R	reverse current	$V_R = V_{RRMmax}$; see Fig.6	-	-	5	μA
		$V_R = V_{RRMmax}$; $T_j = 165\text{ °C}$; see Fig.6	-	-	100	μA
t_{rr}	reverse recovery time BYG60D to J BYG60K and M	when switched from $I_F = 0.5\text{ A}$ to $I_R = 1\text{ A}$; measured at $I_R = 0.25\text{ A}$; see Fig.8	-	-	250	ns
			-	-	300	ns
C_d	diode capacitance BYG60D to J BYG60K and M	$V_R = 0\text{ V}$; $f = 1\text{ MHz}$	-	30	-	pF
			-	25	-	pF

THERMAL CHARACTERISTICS

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

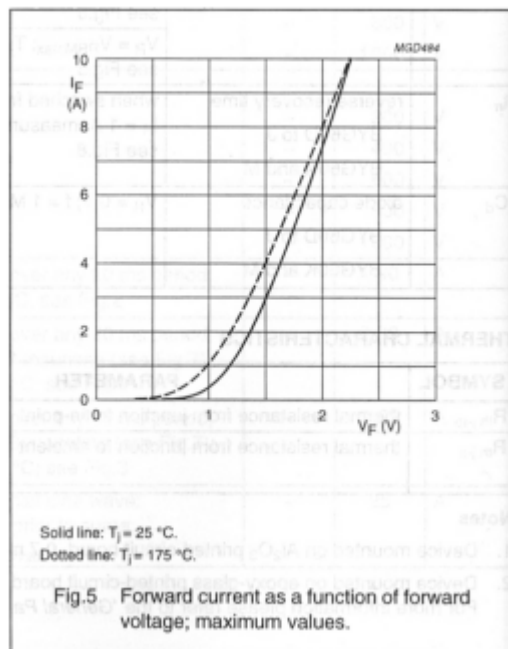
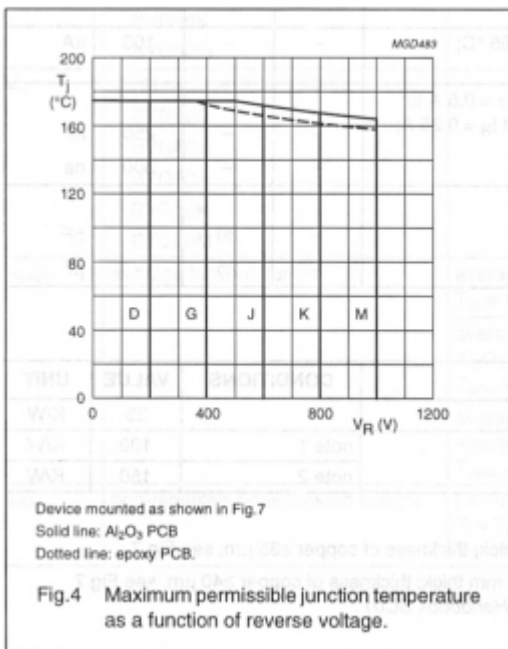
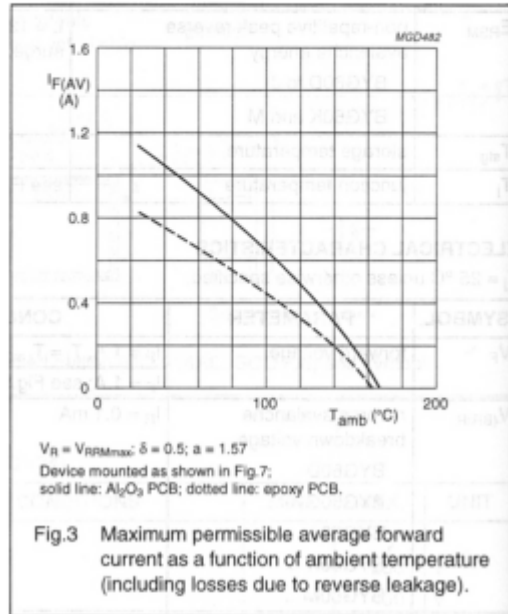
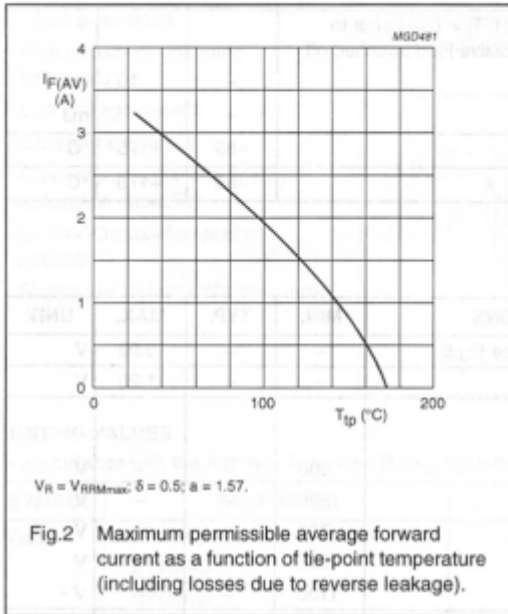
Notes

- Device mounted on Al_2O_3 printed-circuit board, 0.7 mm thick; thickness of copper $\geq 35\ \mu\text{m}$, see Fig.7.
- Device mounted on epoxy-glass printed-circuit board, 1.5 mm thick; thickness of copper $\geq 40\ \mu\text{m}$, see Fig.7.
For more information please refer to the 'General Part of Handbook SC01'.

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GRAPHICAL DATA



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