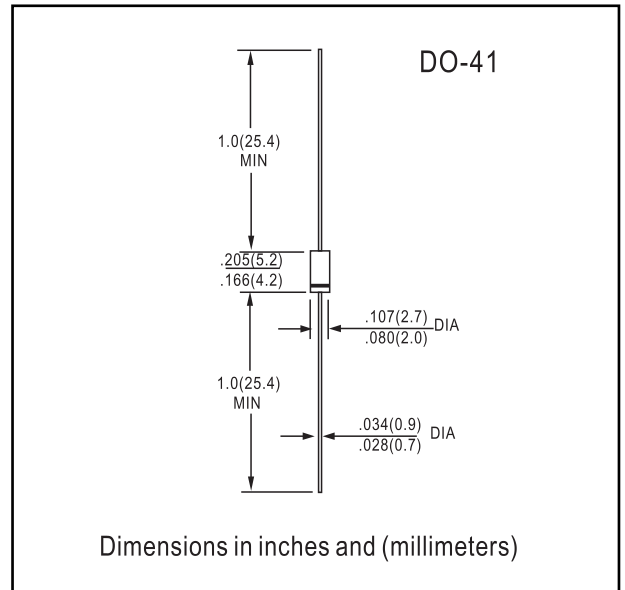


**FEATURES**

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- Guaranteed avalanche energy absorption capability
- Available in ammo-pack.

**MECHANICAL DATA**

- Cavity free cylindrical glass package
- through Implotec™(1) technology.
- This package is hermetically sealed and fatigue free as coefficients of expansion of all used parts are matched.

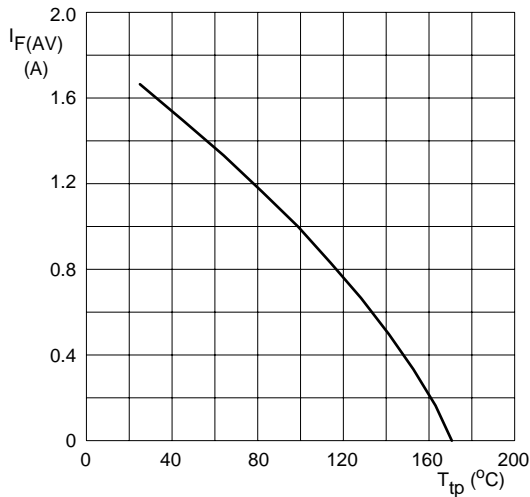

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{F(AV)}$	average forward current	$T_{tp} = 55\text{ }^{\circ}\text{C}$ ; lead length = 10 mm; averaged over any 20 ms period; see Figs 2 and 4	–	1.40	A
		$T_{amb} = 65\text{ }^{\circ}\text{C}$ ; PCB mounting (see Fig.9); averaged over any 20 ms period; see Figs 3 and 4	–	0.75	A
$I_{FSM}$	non-repetitive peak forward current	$t = 10\text{ ms}$ half sinewave; $T_j = T_{j\text{ max}}$ prior to surge; $V_R = V_{RRM\text{ max}}$	–	20	A
$E_{RSM}$	non-repetitive peak reverse avalanche energy	$L = 120\text{ mH}$ ; $T_j = T_{j\text{ max}}$ prior to surge; inductive load switched off	–	7	mJ
$T_{stg}$	storage temperature		–65	+175	$^{\circ}\text{C}$
$T_j$	junction temperature	see Fig.5	–65	+175	$^{\circ}\text{C}$

**ELECTRICAL CHARACTERISTICS**
 $T_j = 25\text{ }^{\circ}\text{C}$ ; unless otherwise specified.

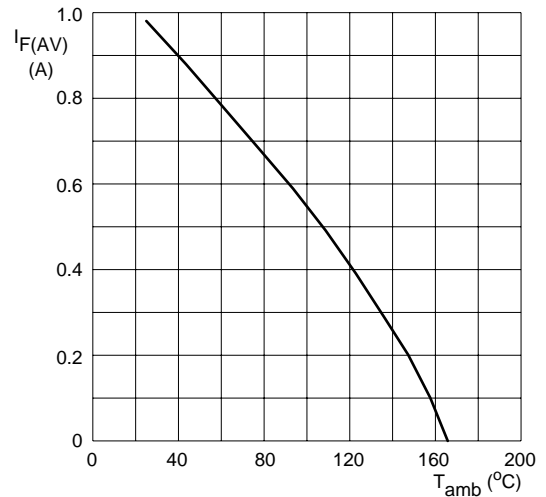
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
$V_F$	forward voltage	$I_F = 1\text{ A}$ ; $T_j = T_{j\text{ max}}$ ; see Fig.6	–	–	0.93	V	
		$I_F = 1\text{ A}$ ; see Fig.6	–	–	1.05	V	
$V_{(BR)R}$	reverse avalanche breakdown voltage	$I_R = 0.1\text{ mA}$					
			BYD13D	225	–	–	V
			BYD13G	450	–	–	V
			BYD13J	650	–	–	V
			BYD13K	900	–	–	V
BYD13M	1100	–	–	V			
$I_R$	reverse current	$V_R = V_{RRM\text{ max}}$ ; see Fig.7	–	–	1	$\mu\text{A}$	
		$V_R = V_{RRM\text{ max}}$ ; $T_j = 165\text{ }^{\circ}\text{C}$ ; see Fig.7	–	–	100	$\mu\text{A}$	
$t_{rr}$	reverse recovery time	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.10	–	3	–	$\mu\text{s}$	
$C_d$	diode capacitance	$V_R = 0\text{ V}$ ; $f = 1\text{ MHz}$ ; see Fig.8	–	21	–	pF	

RATINGS AND CHARACTERISTIC CURVES BYD13D THRU BYD13M



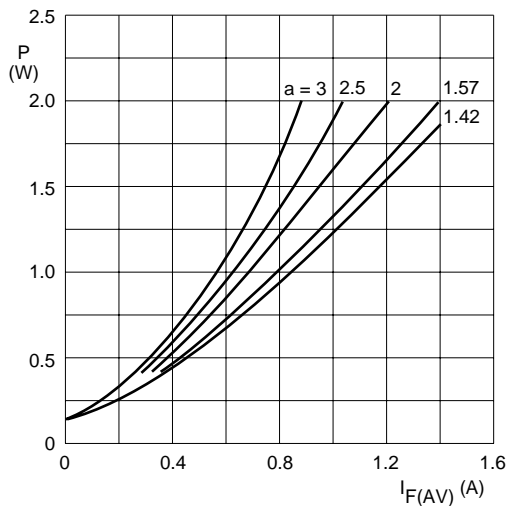
$a = 1.57; V_R = V_{RRMmax}; \delta = 0.5$ .  
Lead length 10 mm.

Fig.2 Maximum permissible average forward current as a function of tie-point temperature (including losses due to reverse leakage).



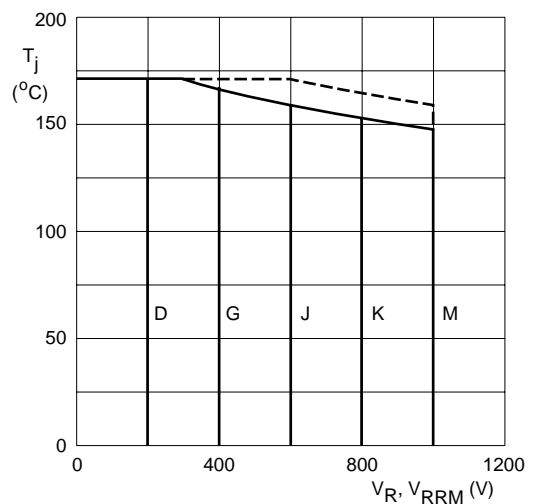
$a = 1.57; V_R = V_{RRMmax}; \delta = 0.5$ .  
Device mounted as shown in Fig.9.

Fig.3 Maximum permissible average forward current as a function of ambient temperature (including losses due to reverse leakage).



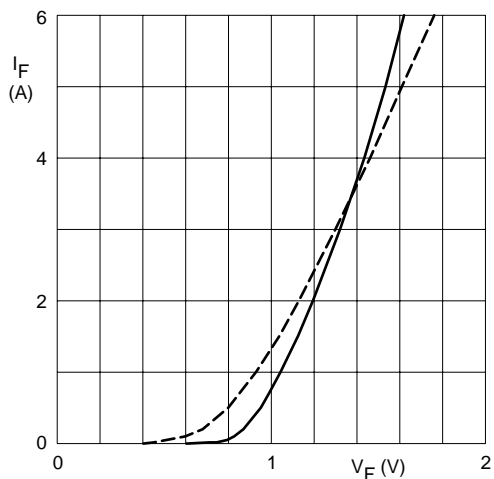
$a = I_{F(RMS)}/I_{F(AV)}; V_R = V_{RRMmax}; \delta = 0.5$ .

Fig.4 Maximum steady state power dissipation (forward plus leakage current losses, excluding switching losses) as a function of average forward current.



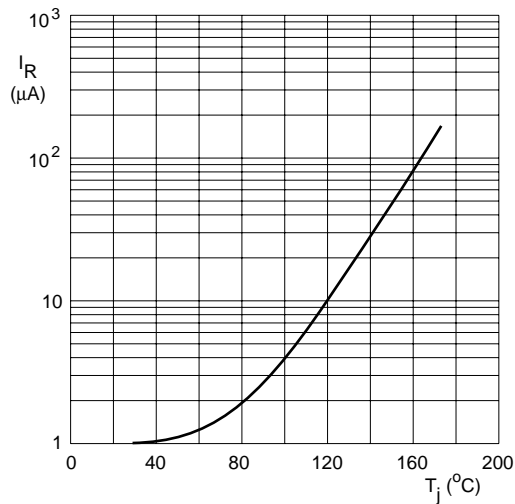
Solid line =  $V_R$ .  
Dotted line =  $V_{RRM}; \delta = 0.5$ .

Fig.5 Maximum permissible junction temperature as a function of reverse voltage.



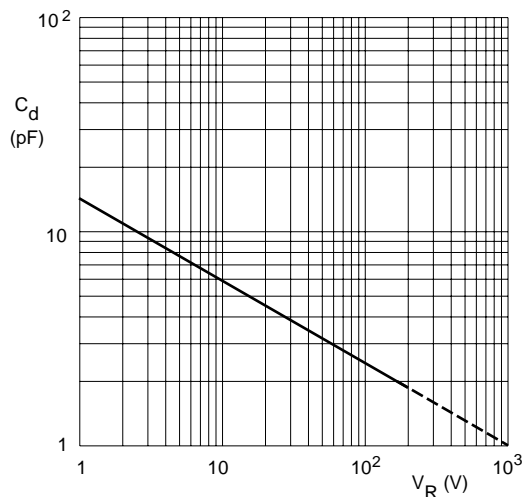
Solid line:  $T_j = 25^\circ\text{C}$ .  
 Dotted line:  $T_j = 175^\circ\text{C}$ .

Fig.6 Forward current as a function of forward voltage; maximum values.



$V_R = V_{RRMmax}$ .

Fig.7 Reverse current as a function of junction temperature; maximum values.



$f = 1\text{ MHz}$ ;  $T_j = 25^\circ\text{C}$ .

Fig.8 Diode capacitance as a function of reverse voltage; typical values.