

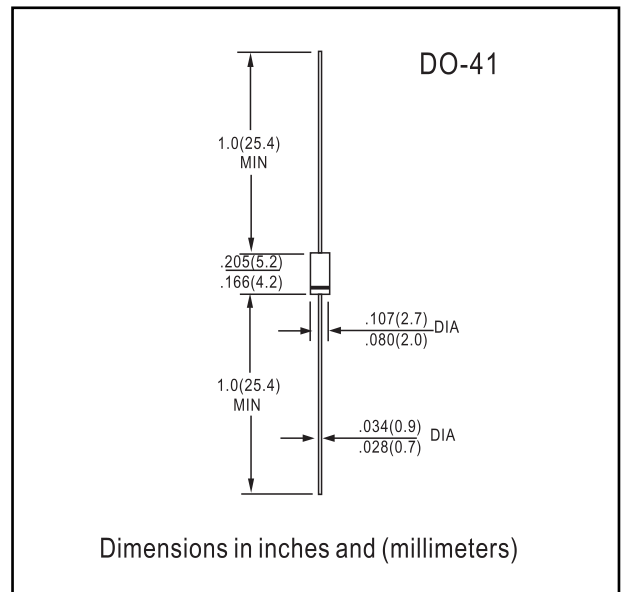


FEATURES

- 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 °C; lead length = 10 mm; averaged over any 20 ms period; see Figs 2 and 4 | – | 1.40 | A |
| | | T _{amb} = 65 °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 ms half sinewave; T _j = T _{j max} prior to surge; V _R = V _{RRMmax} | – | 20 | A |
| E _{RSM} | non-repetitive peak reverse avalanche energy | L = 120 mH; T _j = T _{j max} prior to surge; inductive load switched off | – | 7 | mJ |
| T _{stg} | storage temperature | | –65 | +175 | °C |
| T _j | junction temperature | see Fig.5 | –65 | +175 | °C |

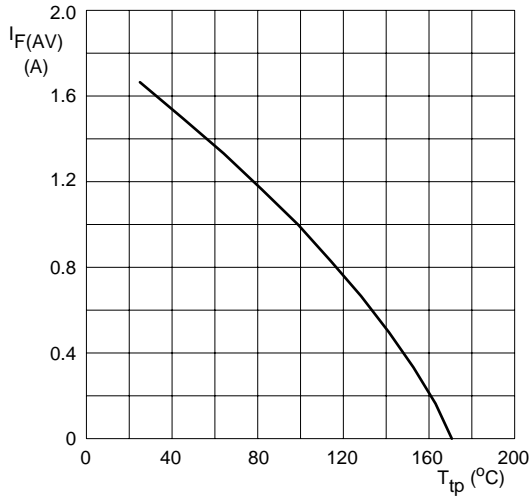
ELECTRICAL CHARACTERISTICS

T_j = 25 °C; unless otherwise specified.

| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT | |
|--------------------|-------------------------------------|--|--------|------|------|------|---|
| V _F | forward voltage | I _F = 1 A; T _j = T _{j max} ; see Fig.6 | – | – | 0.93 | V | |
| | | I _F = 1 A; see Fig.6 | – | – | 1.05 | V | |
| V _{(BR)R} | reverse avalanche breakdown voltage | I _R = 0.1 mA | | | | | |
| | | | BYD13D | 225 | – | – | V |
| | | | BYD13G | 450 | – | – | V |
| | | | BYD13J | 650 | – | – | V |
| | | | BYD13K | 900 | – | – | V |
| BYD13M | 1100 | – | – | V | | | |
| I _R | reverse current | V _R = V _{RRMmax} ; see Fig.7 | – | – | 1 | µA | |
| | | V _R = V _{RRMmax} ; T _j = 165 °C; see Fig.7 | – | – | 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.10 | – | 3 | – | µs | |
| C _d | diode capacitance | V _R = 0 V; f = 1 MHz; see Fig.8 | – | 21 | – | pF | |

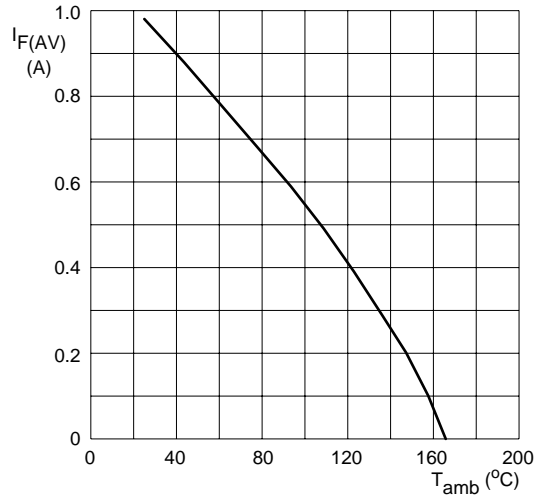


RATINGS AND CHARACTERISTIC CURVES BYD13D THRU BYD13M



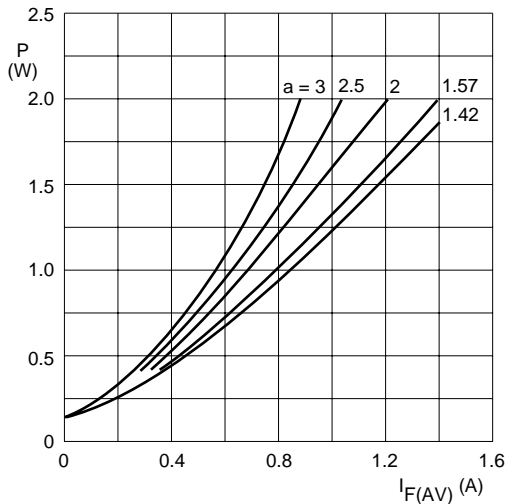
$a = 1.57; V_R = V_{RRMmax}; \delta = 0.5.$
Lead length 10 mm.

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



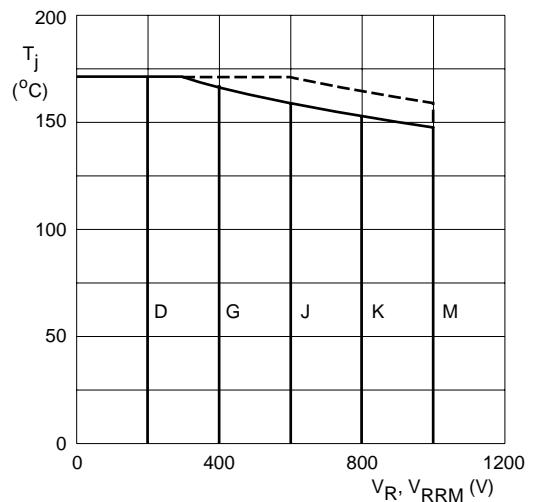
$a = 1.57; V_R = V_{RRMmax}; \delta = 0.5.$
Device mounted as shown in Fig.9.

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



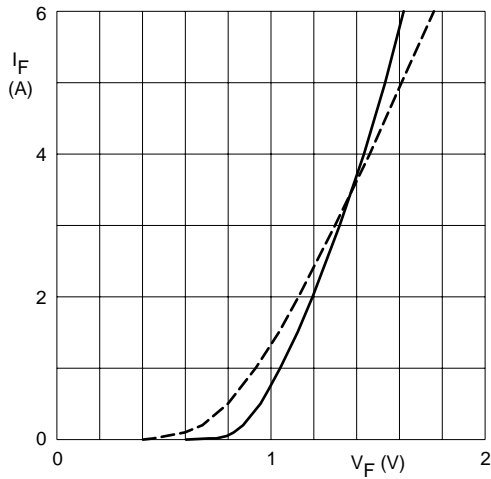
$a = I_{F(RMS)}/I_{F(AV)}; V_R = V_{RRMmax}; \delta = 0.5.$

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



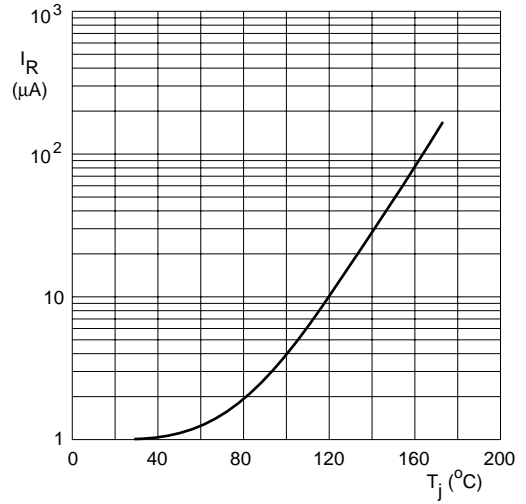
Solid line = $V_R.$
Dotted line = $V_{RRM}; \delta = 0.5.$

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



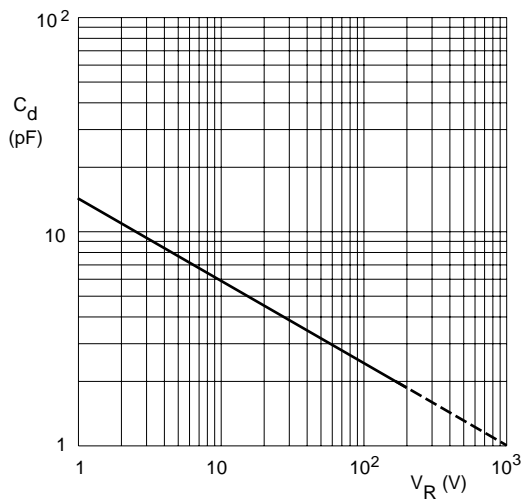
Solid line: $T_j = 25^\circ\text{C}$.
Dotted line: $T_j = 175^\circ\text{C}$.

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.