

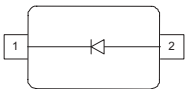


**THE DATASHEET OF
BAT165E6327HTSA1**



Medium Power AF Schottky Diode

- Forward current: 750 mA
Reverse voltage: 40 V
- For low-loss, fast-recovery, meter protection, bias isolation and clamping applications
- Pb-free (RoHS compliant) package¹⁾
- Qualified according AEC Q101


BAT165


ESD (Electrostatic discharge) sensitive device, observe handling precaution!

| Type | Package | Configuration | Marking |
|--------|---------|---------------|---------|
| BAT165 | SOD323 | single | C/White |

Maximum Ratings at $T_A = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|-----------|-------------|------|
| Diode reverse voltage ²⁾ | V_R | 40 | V |
| Forward current ²⁾ | I_F | 750 | mA |
| Average rectified forward current (50/60Hz, sinus) | I_{FAV} | 500 | mA |
| Non-repetitive peak surge forward current ($t \leq 10\text{ms}$) | I_{FSM} | 2.5 | A |
| Total power dissipation $T_S \leq 93^\circ\text{C}$ | P_{tot} | 600 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -65 ... 150 | |

Thermal Resistance

| Parameter | Symbol | Value | Unit |
|--|------------|-----------|------|
| Junction - soldering point ³⁾ | R_{thJS} | ≤ 95 | K/W |

¹⁾Pb-containing package may be available upon special request

²⁾For $T_A > 25^\circ\text{C}$ the derating of V_R and I_F has to be considered. Please refer to the attached curves.

³⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

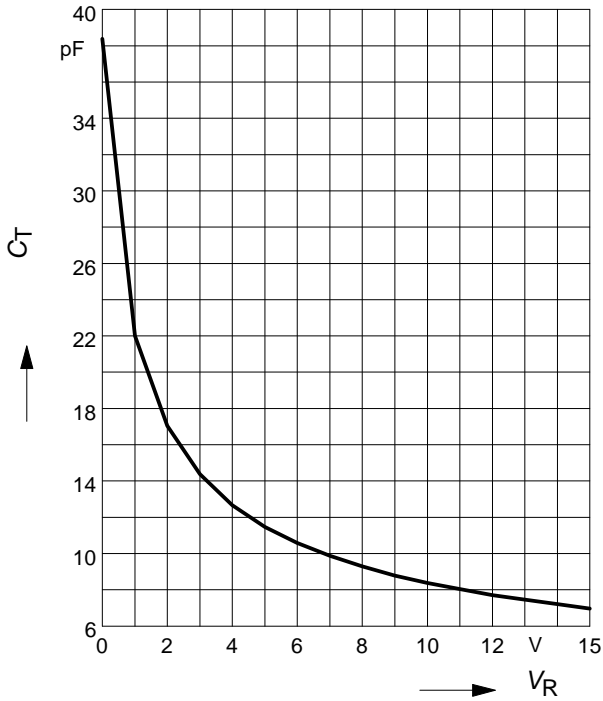
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|--------|--------|-------|------|---------------|
| | | min. | typ. | max. | |
| DC Characteristics | | | | | |
| Reverse current ¹⁾ | I_R | | | | μA |
| $V_R = 30\text{ V}$ | | - | - | 12 | |
| $V_R = 40\text{ V}$ | | - | - | 50 | |
| $V_R = 40\text{ V}, T_A = 65^\circ\text{C}$ | | - | - | 900 | |
| Forward voltage | V_F | | | | V |
| $I_F = 10\text{ mA}$ | | 0.23 | 0.315 | 0.4 | |
| $I_F = 100\text{ mA}$ | | 0.32 | 0.39 | 0.47 | |
| $I_F = 250\text{ mA}$ | | 0.35 | 0.44 | 0.54 | |
| $I_F = 750\text{ mA}$ | | 0.44 | 0.58 | 0.74 | |
| AC Characteristics | | | | | |
| Diode capacitance | C_T | - | 8.4 | 12 | pF |
| $V_R = 10\text{ V}, f = 1\text{ MHz}$ | | | | | |

¹Pulsed test: $t_p = 300\ \mu\text{s}; D = 0.01$

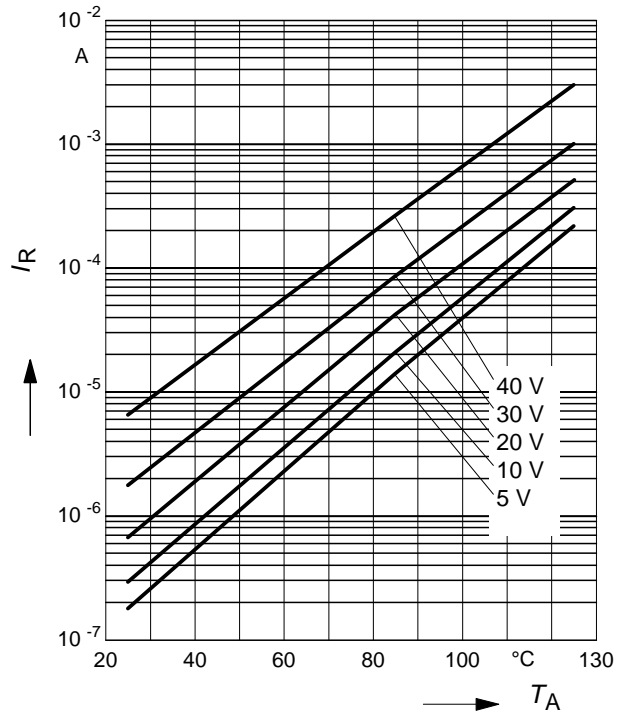
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



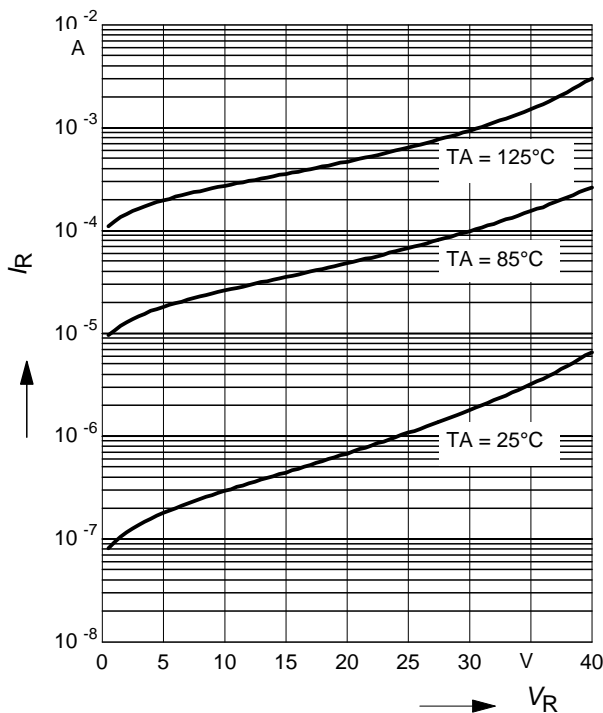
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$



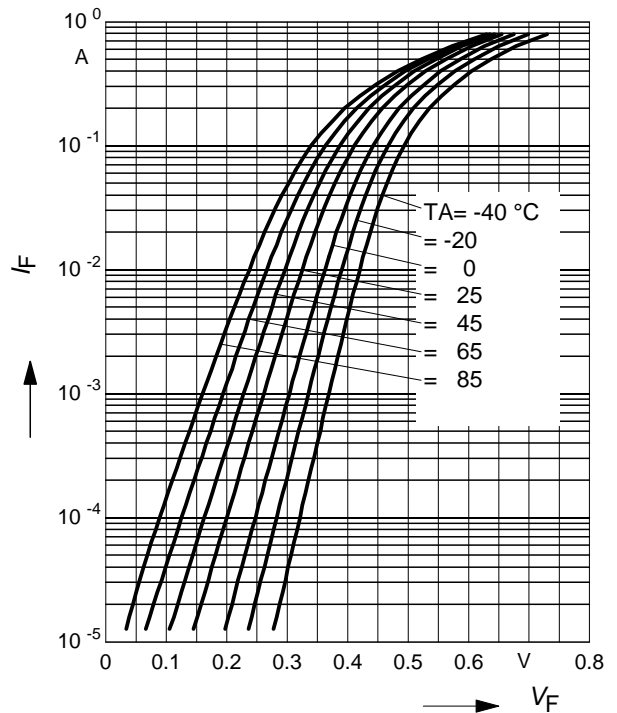
Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



Forward current $I_F = f(V_F)$

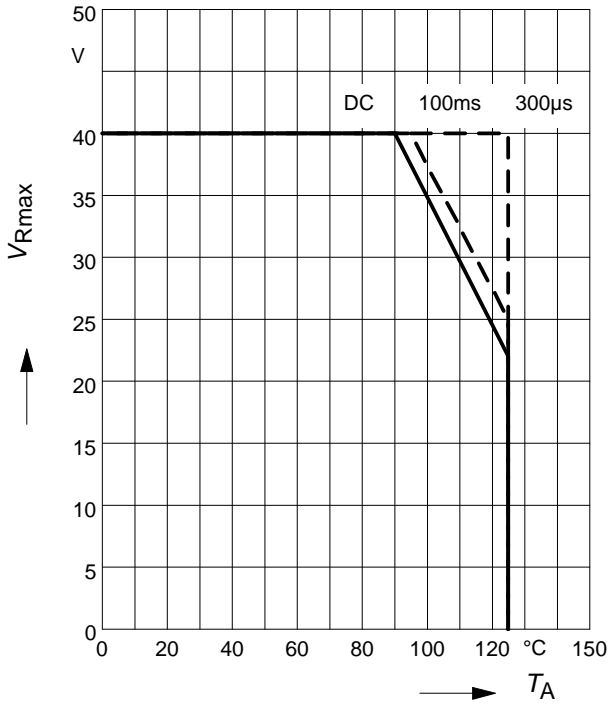
$T_A = \text{Parameter}$



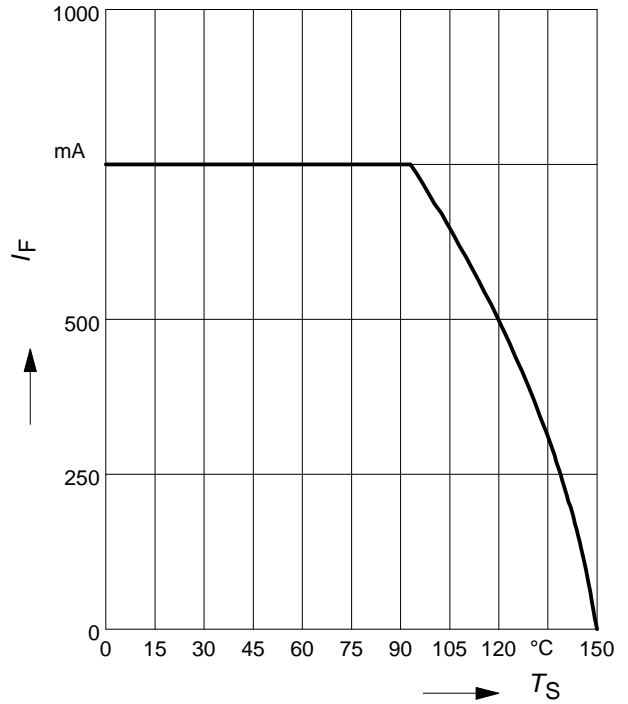
Permissible Reverse voltage $V_R = f(T_A)$

t_p = Parameter, Duty cycle < 0.01

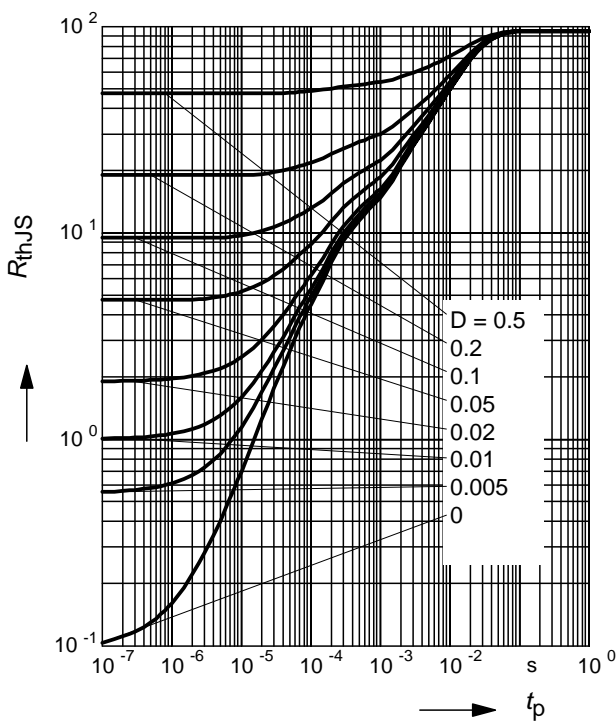
Device mounted on PCB with $R_{th} = 160 \text{ k/W}$



Forward current $I_F = f(T_S)$

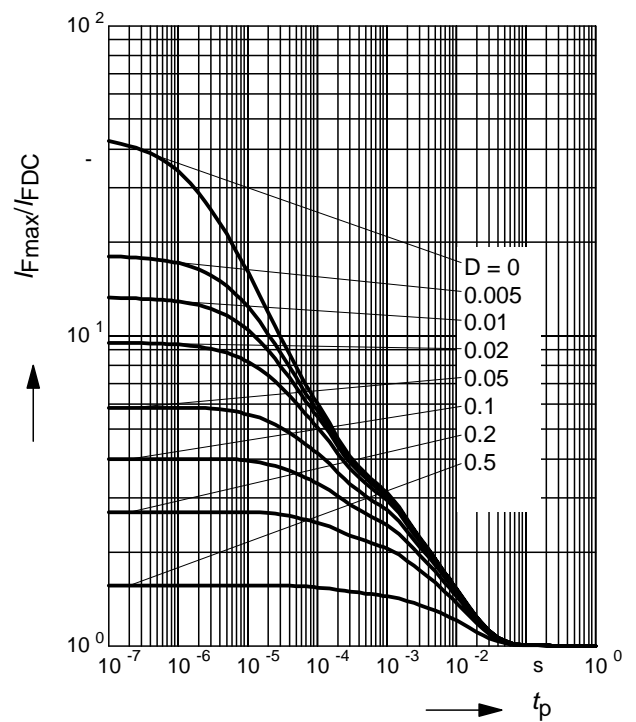


Permissible Puls Load $R_{thJS} = f(t_p)$

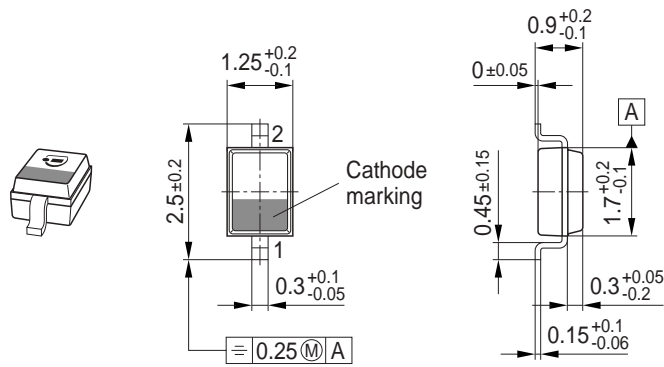


Permissible Pulse Load

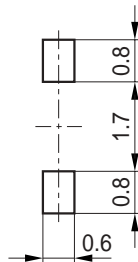
$I_{Fmax} / I_{FDC} = f(t_p)$



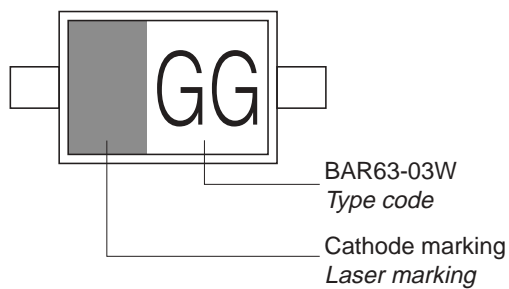
Package Outline



Foot Print

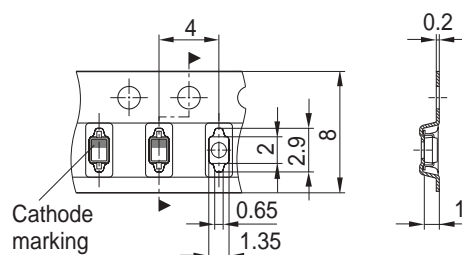


Marking Layout (Example)



Standard Packing

Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel



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