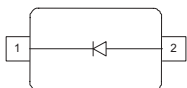


Medium Power AF Schottky Diode

- 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 / Ordering code	Package	Configuration	Marking
BAT165 / BAT165E6327HTSA1	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	$^\circ\text{C}$
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

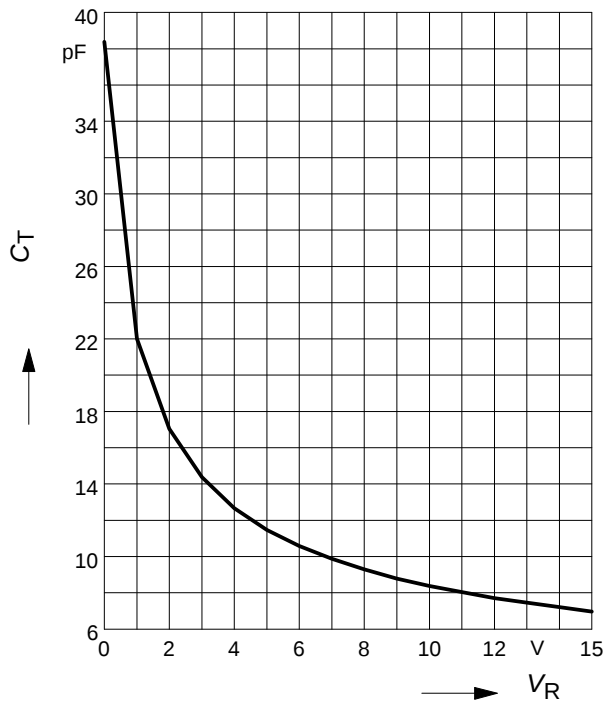
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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	
$V_R = 40\text{ V}, T_A = 65\text{ }^{\circ}\text{C}$		-	-	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: $t_p = 300\text{ }\mu\text{s}$; $D = 0.01$

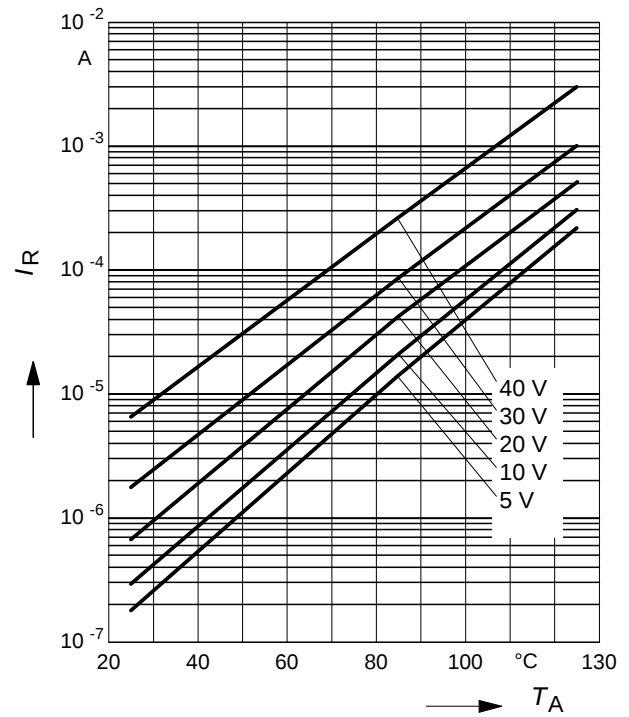
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



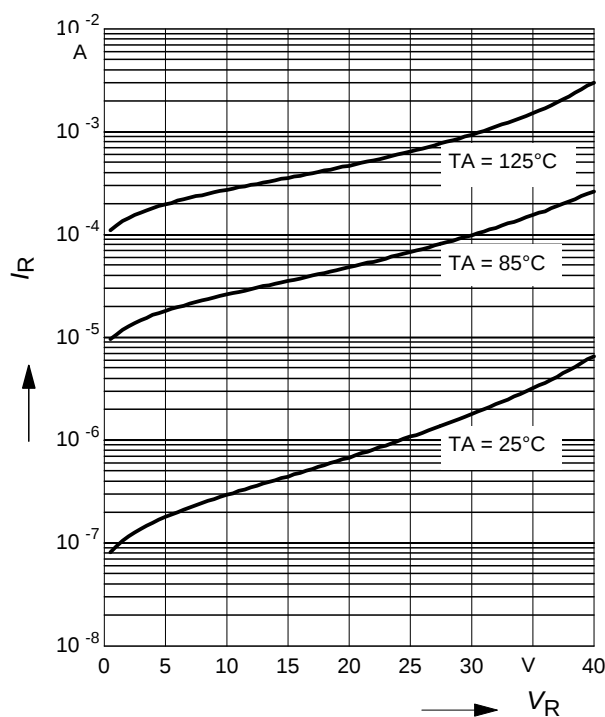
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$



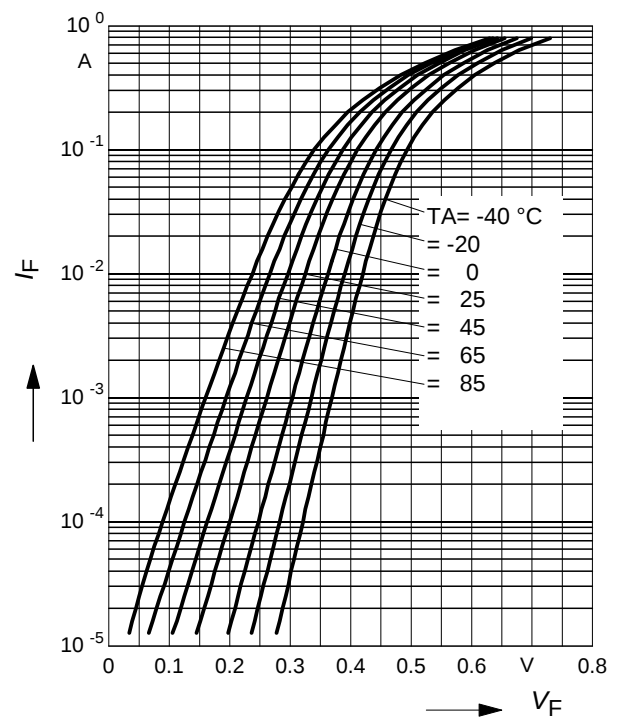
Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



Forward current $I_F = f(V_F)$

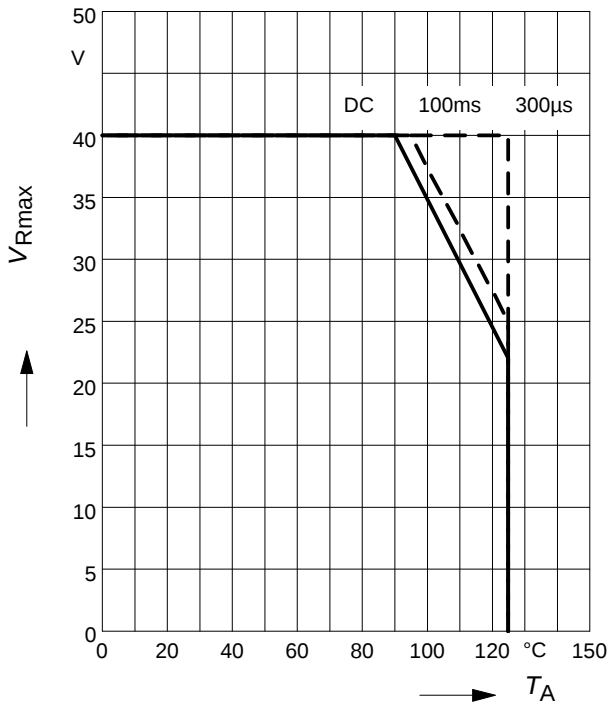
$T_A = \text{Parameter}$



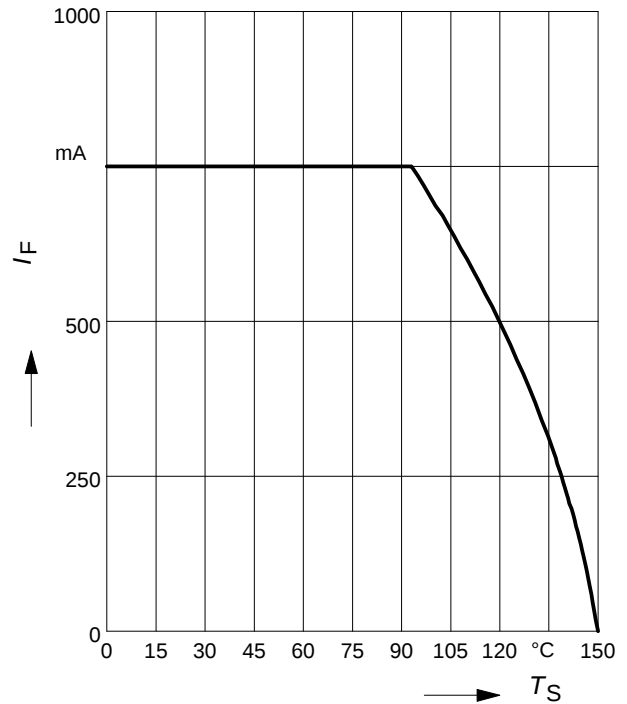
Permissible Reverse voltage $V_R = f(T_A)$

t_p = Parameter, Duty cycle < 0.01

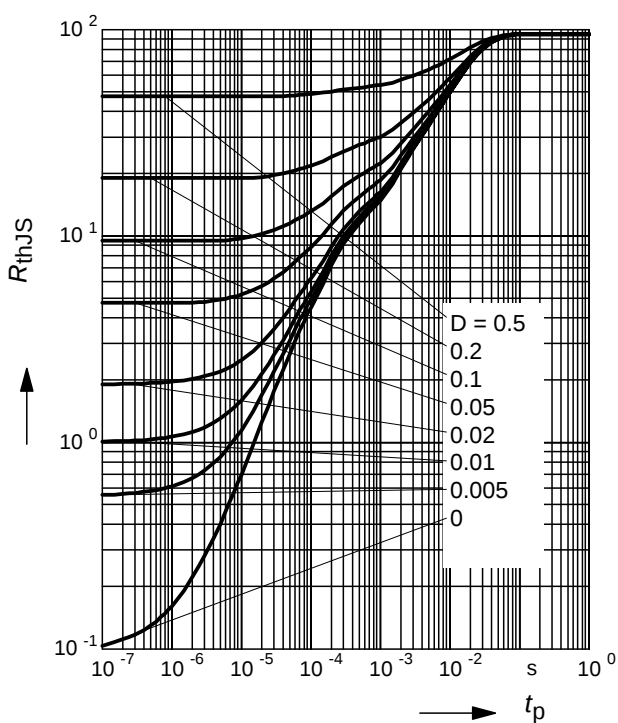
Device mounted on PCB with $R_{th} = 160 \text{ k/W}$



Forward current $I_F = f(T_S)$

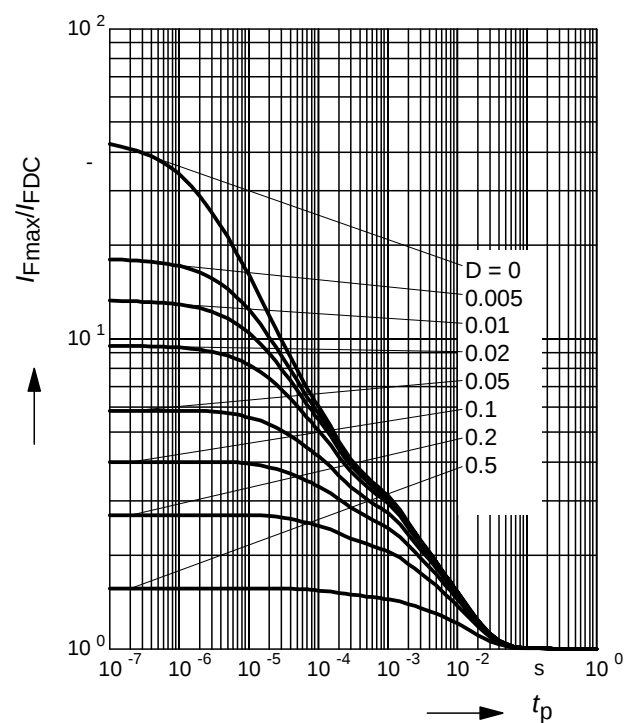


Permissible Puls Load $R_{thJS} = f(t_p)$



Permissible Pulse Load

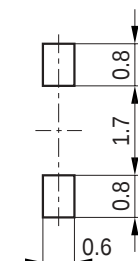
$$I_{Fmax}/I_{FDC} = f(t_p)$$



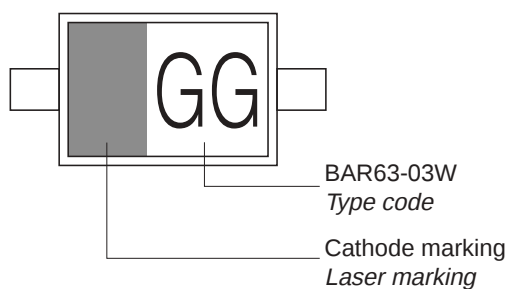
Package Outline



Foot Print

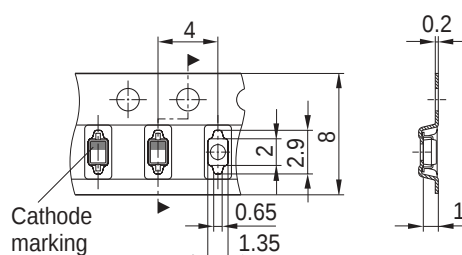


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel



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