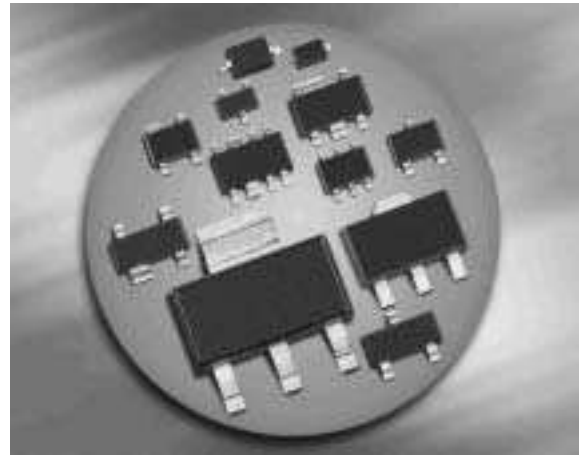
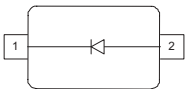


### Medium Power AF Schottky Diode

- Forward current: 750 mA  
Reverse voltage: 40 V
- For low-loss, fast-recovery, meter protection, bias isolation and clamping applications
- Pb-free (RoHS compliant) package<sup>1)</sup>
- 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  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Value	Unit
Diode reverse voltage <sup>2)</sup>	$V_R$	40	V
Forward current <sup>2)</sup>	$I_F$	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 $T_S \leq 93\text{ }^\circ\text{C}$	$P_{tot}$	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 <sup>3)</sup>	$R_{thJS}$	$\leq 95$	K/W

<sup>1)</sup>Pb-containing package may be available upon special request

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

<sup>3)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

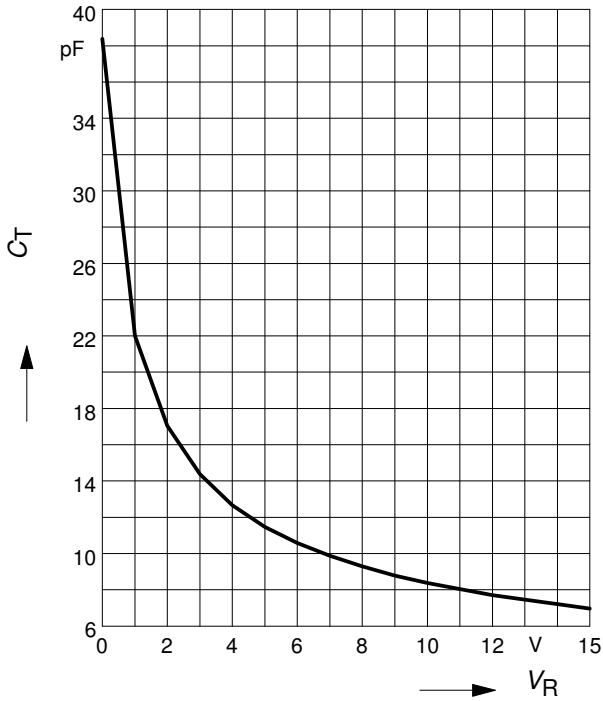
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Reverse current <sup>1)</sup>	$I_R$				$\mu\text{A}$
$V_R = 30\text{ V}$		-	-	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	
<b>AC Characteristics</b>					
Diode capacitance	$C_T$	-	8.4	12	$\text{pF}$
$V_R = 10\text{ V}, f = 1\text{ MHz}$					

<sup>1)</sup>Pulsed test:  $t_p = 300\ \mu\text{s}; D = 0.01$

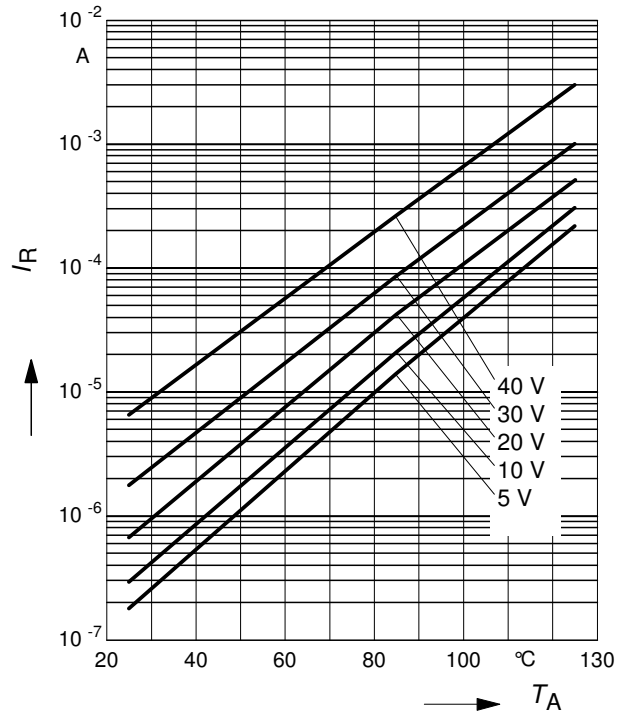
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



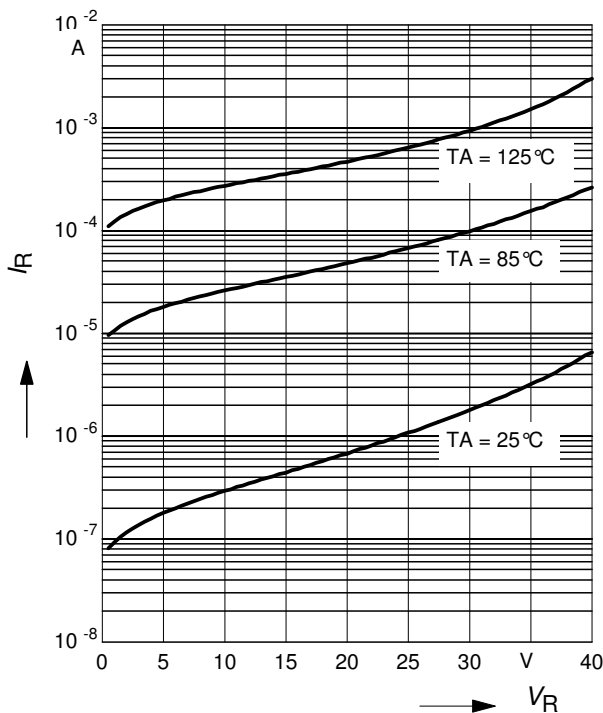
**Reverse current  $I_R = f(T_A)$**

$V_R = \text{Parameter}$



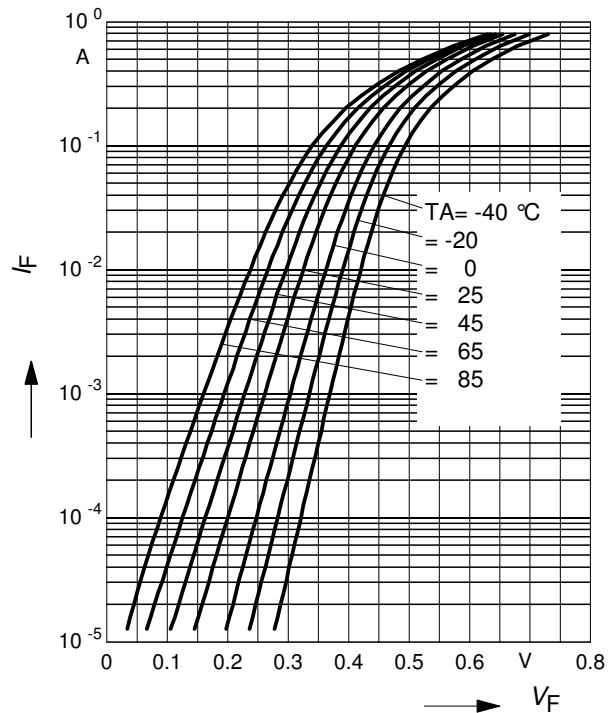
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



**Forward current  $I_F = f(V_F)$**

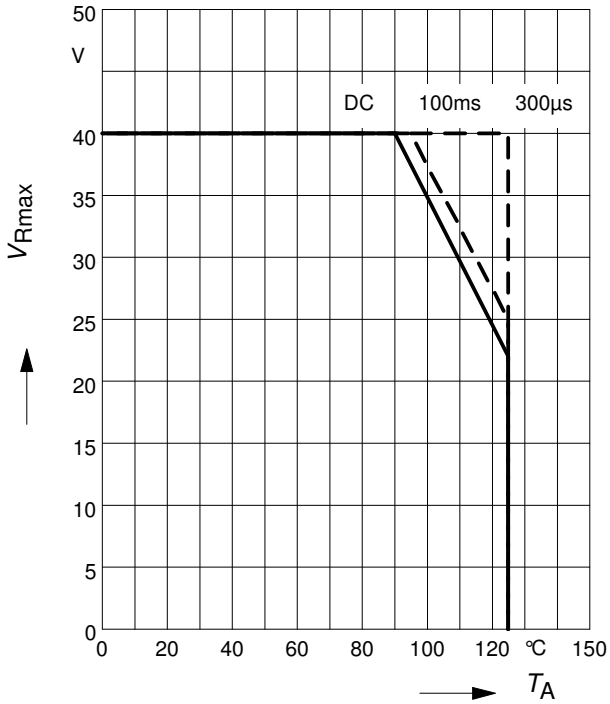
$T_A = \text{Parameter}$



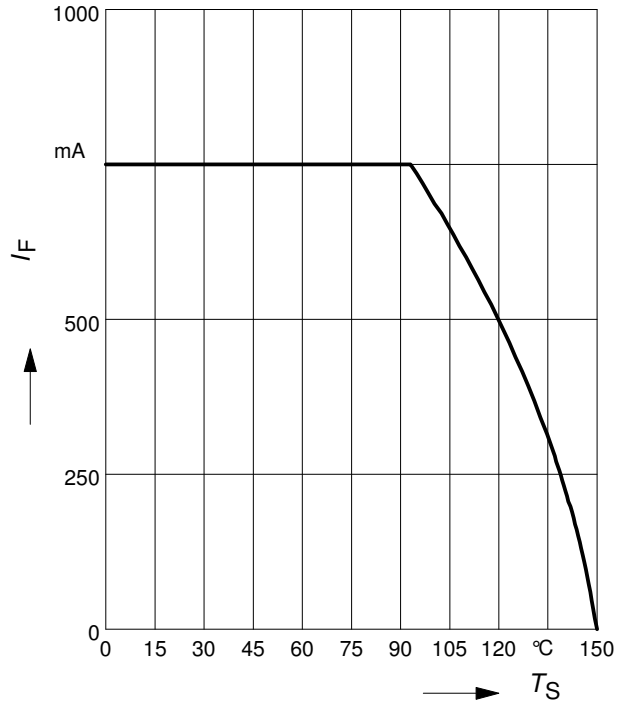
**Permissible Reverse voltage  $V_R = f(T_A)$**

$t_p$  = Parameter, Duty cycle < 0.01

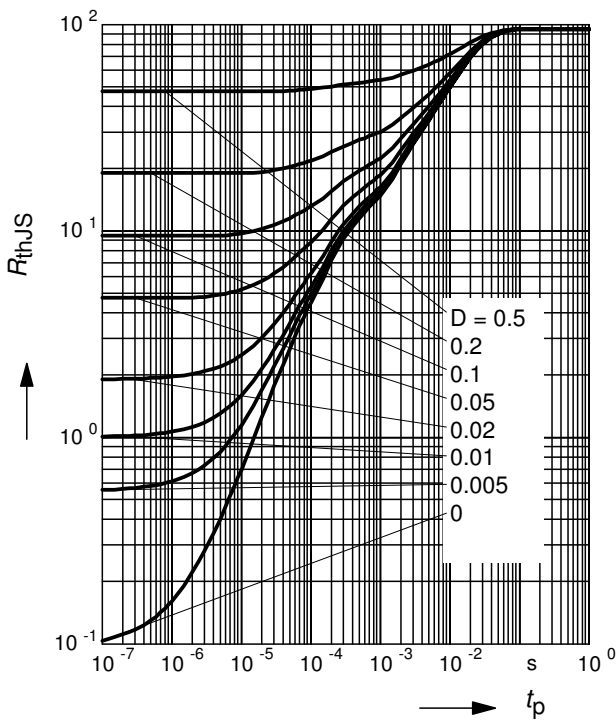
Device mounted on PCB with  $R_{th} = 160 \text{ k/W}$



**Forward current  $I_F = f(T_S)$**

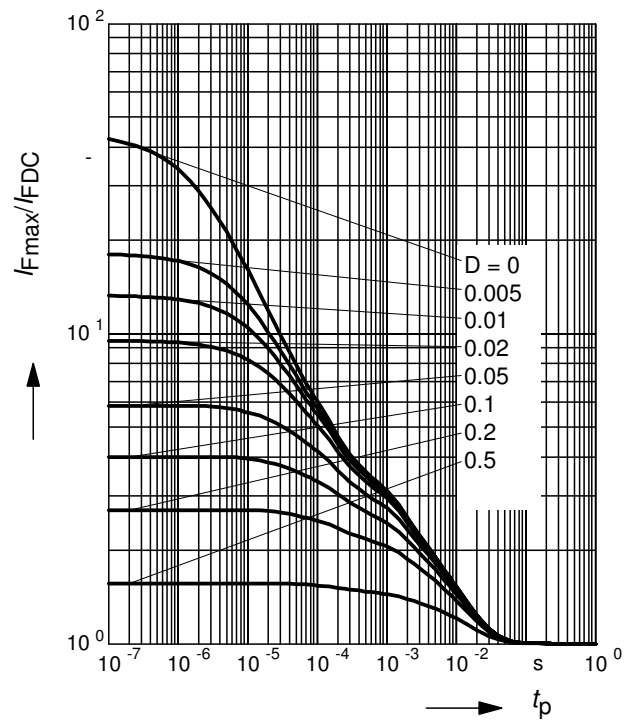


**Permissible Puls Load  $R_{thJS} = f(t_p)$**

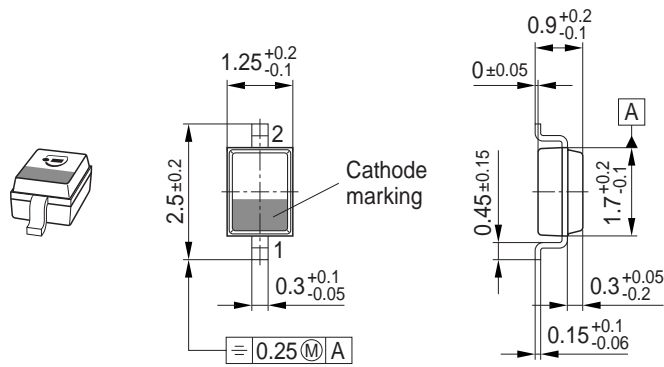


**Permissible Pulse Load**

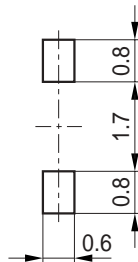
$I_{Fmax} / I_{FDC} = f(t_p)$



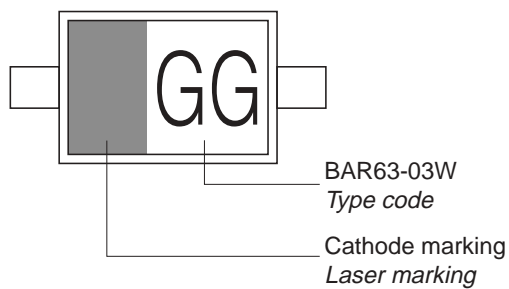
Package Outline



Foot Print

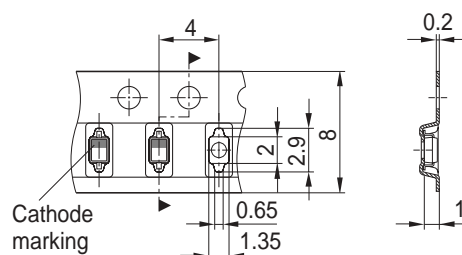


Marking Layout (Example)



Standard Packing

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



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