

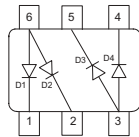
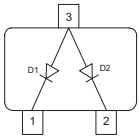
**Silicon Switching Diode**

- For high-speed switching applications
- Common anode configuration
- BAW56S / U: For orientation in reel see package information below
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101



**BAW56**  
**BAW56W**

**BAW56S**  
**BAW56U**



Type	Package	Configuration	Marking
BAW56	SOT23	common anode	A1s
BAW56S	SOT363	double common anode	A1s
BAW56U	SC74	double common anode	A1s
BAW56W	SOT323	common anode	A1s

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

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	80	V
Peak reverse voltage	$V_{RM}$	85	
Forward current	$I_F$	200	mA
Non-repetitive peak surge forward current	$I_{FSM}$		A
$t = 1 \mu\text{s}$		4.5	
$t = 1 \text{ms}$		1	
$t = 1 \text{s, single}$		0.5	
$t = 1 \text{s, double}$		0.75	
Total power dissipation	$P_{tot}$		mW
BAW56, $T_S \leq 28^\circ\text{C}$		330	
BAW56S, $T_S \leq 85^\circ\text{C}$		250	
BAW56U, $T_S \leq 90^\circ\text{C}$		250	
BAW56W, $T_S \leq 103^\circ\text{C}$		250	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-65 ... 150	

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup>	$R_{thJS}$		K/W
BAW56		360	
BAW56S		260	
BAW56U		240	
BAW56W		190	

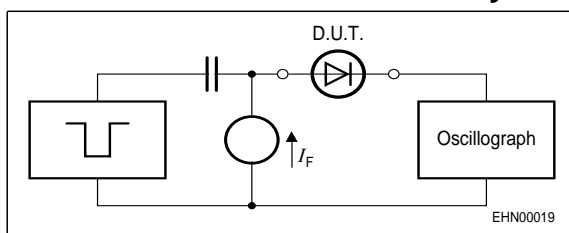
<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Breakdown voltage $I_{(BR)} = 100 \mu\text{A}$	$V_{(BR)}$	85	-	-	V
Reverse current $V_R = 70 \text{ V}$ $V_R = 25 \text{ V}, T_A = 150^\circ\text{C}$ $V_R = 70 \text{ V}, T_A = 150^\circ\text{C}$	$I_R$	-	-	0.15 30 50	$\mu\text{A}$
Forward voltage $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 50 \text{ mA}$ $I_F = 100 \text{ mA}$ $I_F = 150 \text{ mA}$	$V_F$	-	-	715 855 1000 1200 1250	mV

**AC Characteristics**

Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$	$C_T$	-	-	2	pF
Reverse recovery time $I_F = 10 \text{ mA}, I_R = 10 \text{ mA}$ , measured at $I_R = 1 \text{ mA}$ , $R_L = 100 \Omega$	$t_{rr}$	-	-	4	ns

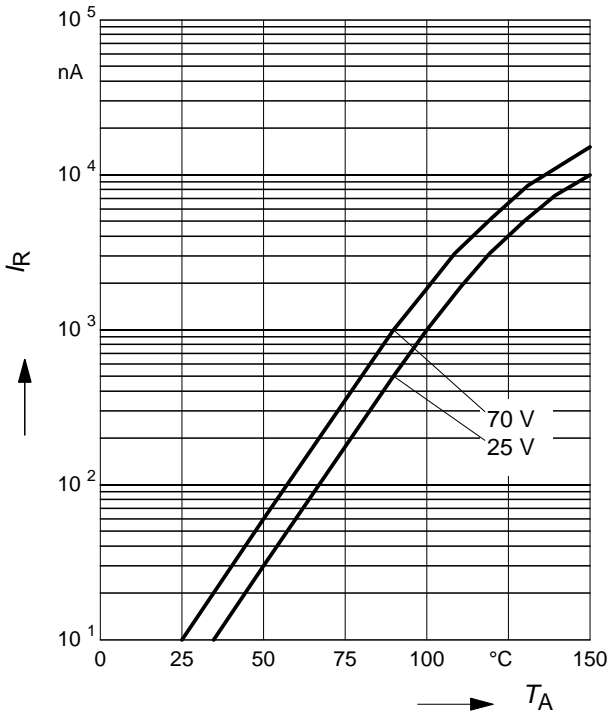
**Test circuit for reverse recovery time**


Pulse generator:  $t_p = 100\text{ns}$ ,  $D = 0.05$ ,  $t_r = 0.6\text{ns}$ ,  
 $R_i = 50\Omega$

Oscilloscope:  $R = 50\Omega$ ,  $t_r = 0.35\text{ns}$ ,  $C \leq 1\text{pF}$

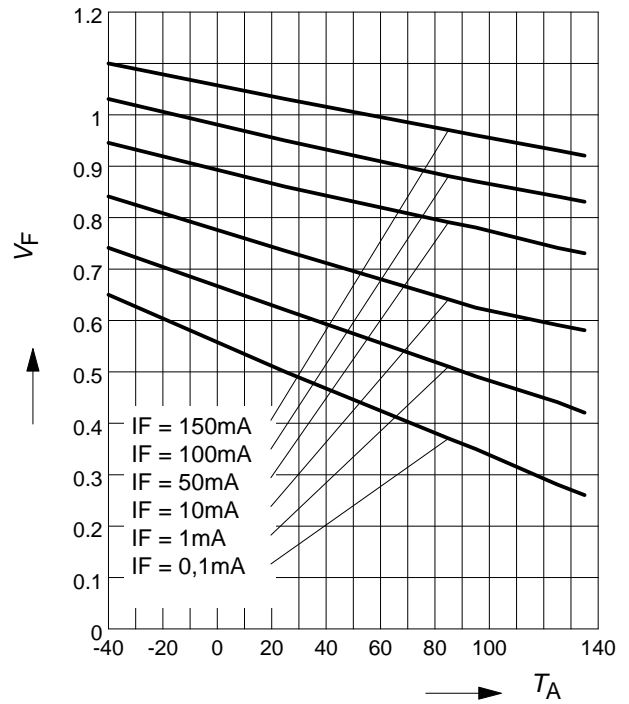
**Reverse current  $I_R = f(T_A)$**

$V_R = \text{Parameter}$



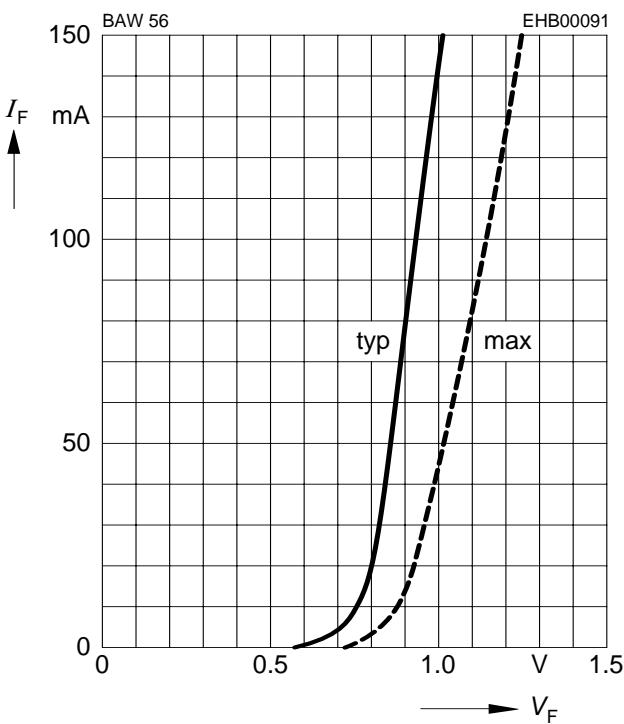
**Forward Voltage  $V_F = f(T_A)$**

$I_F = \text{Parameter}$



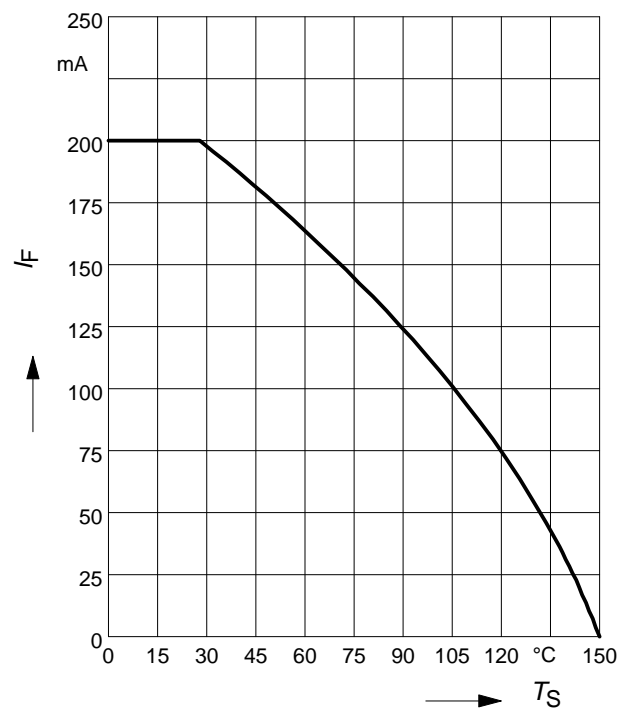
**Forward current  $I_F = f(V_F)$**

$T_A = 25^\circ\text{C}$



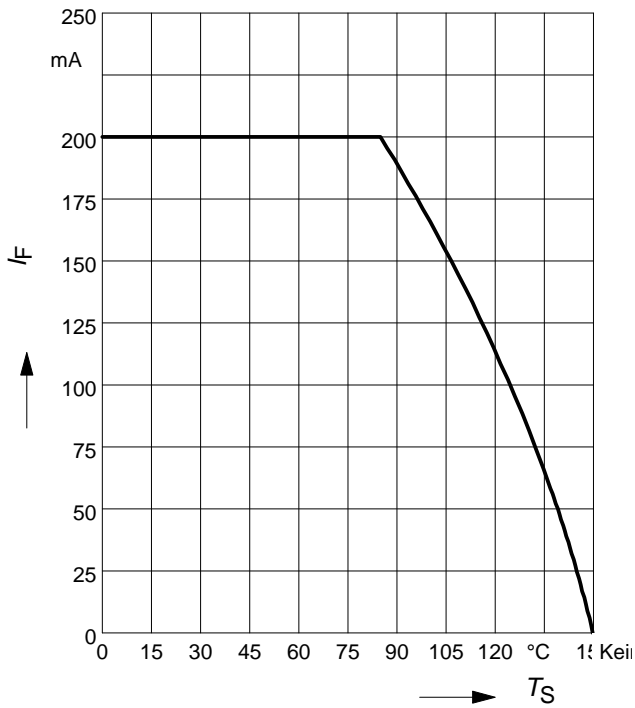
**Forward current  $I_F = f(T_S)$**

BAW56



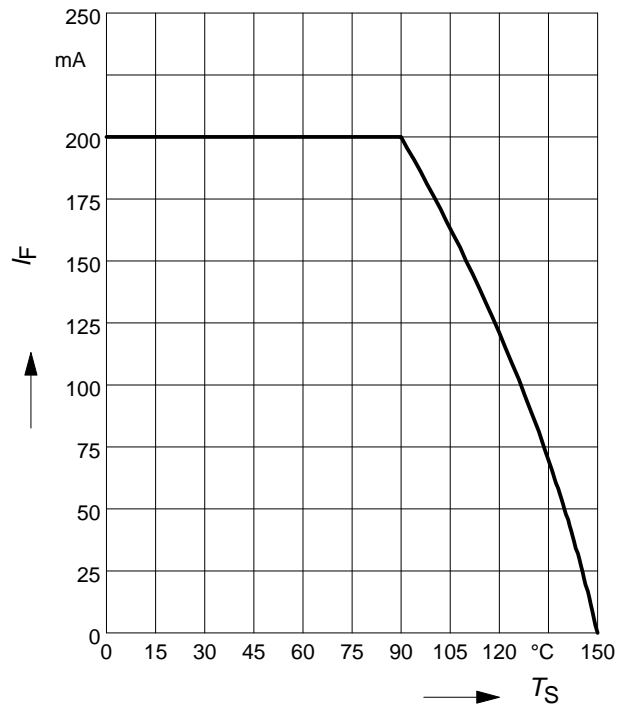
Forward current  $I_F = f(T_S)$

BAW56S



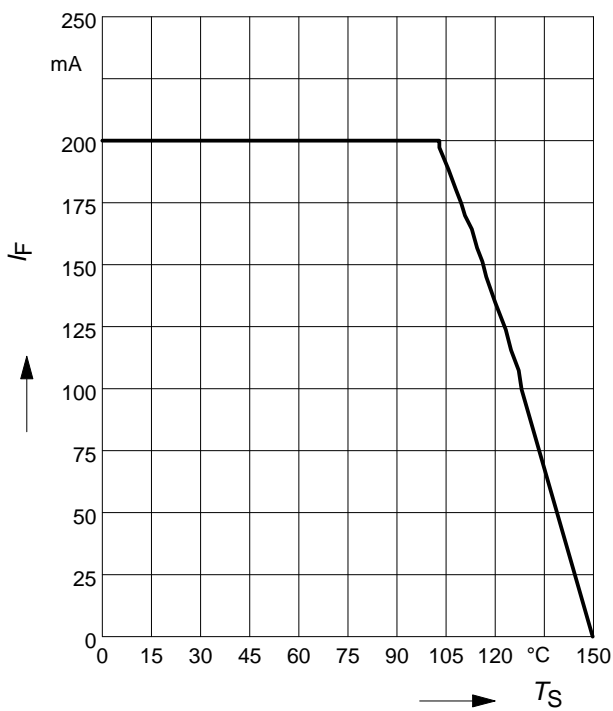
Forward current  $I_F = f(T_S)$

BAW56U



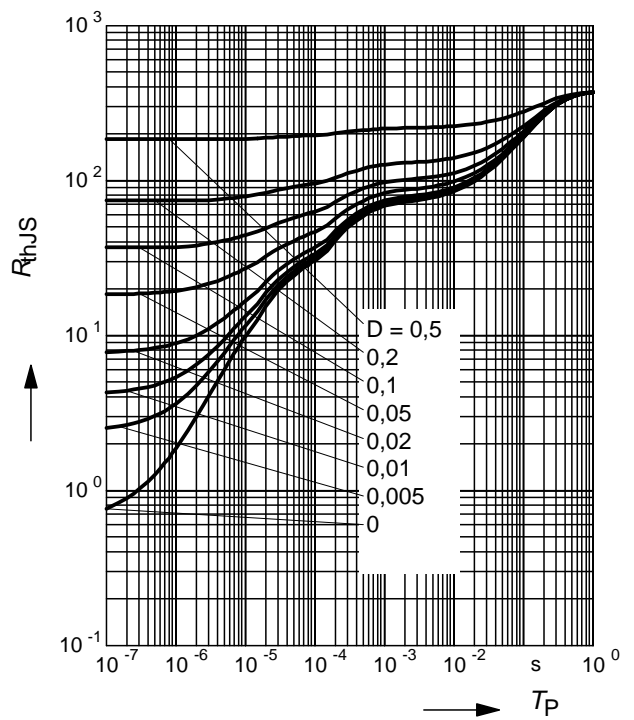
Forward current  $I_F = f(T_S)$

BAW56W



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

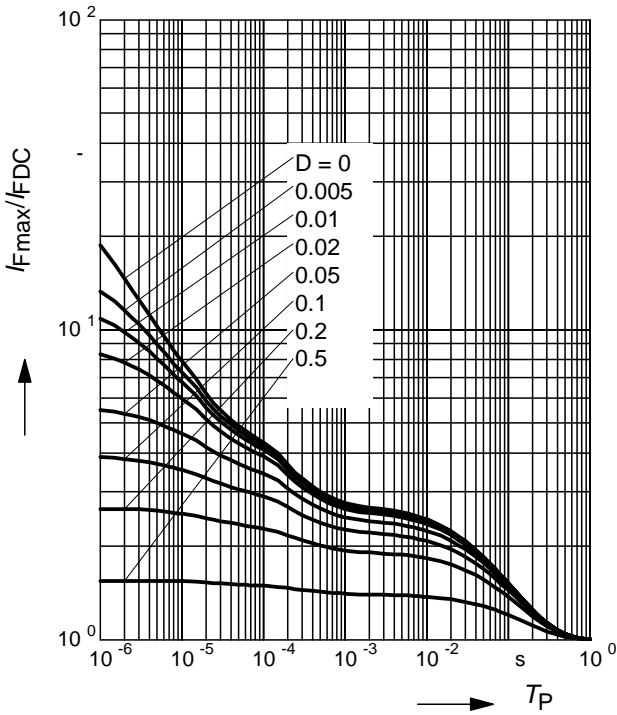
BAW56



**Permissible Pulse Load**

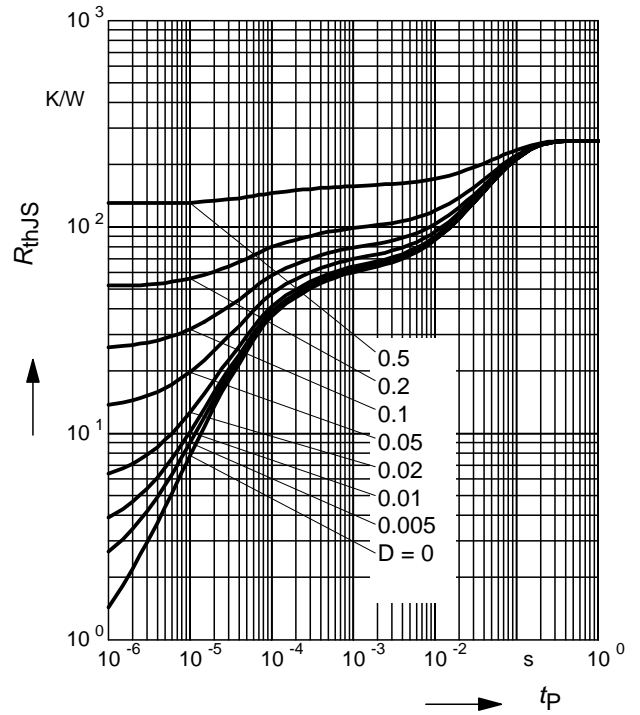
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAW56



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

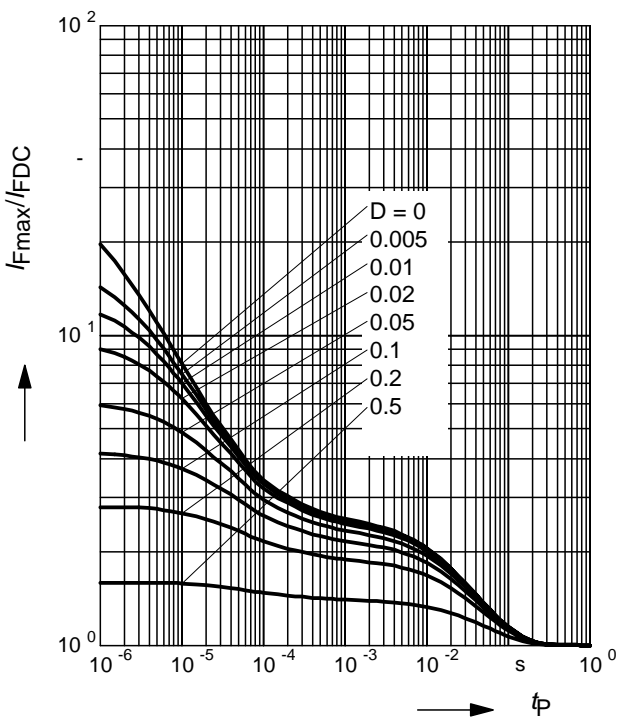
BAW56S



**Permissible Pulse Load**

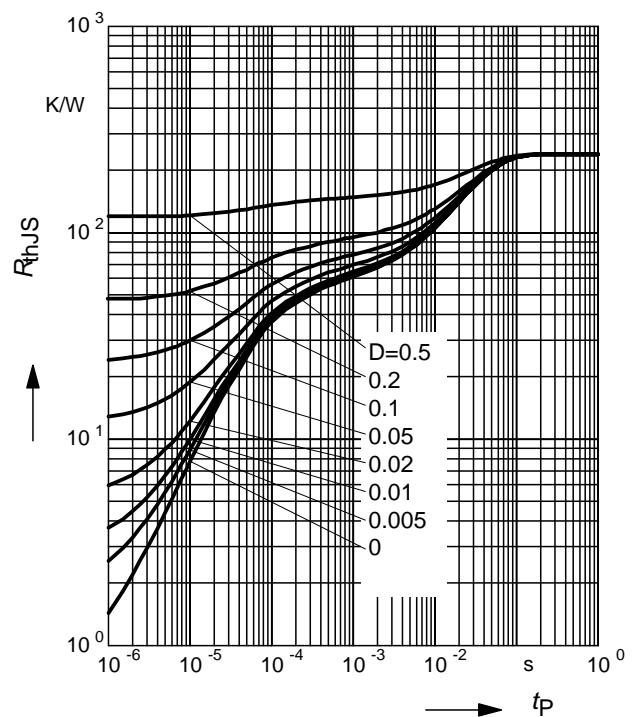
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAW56S



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

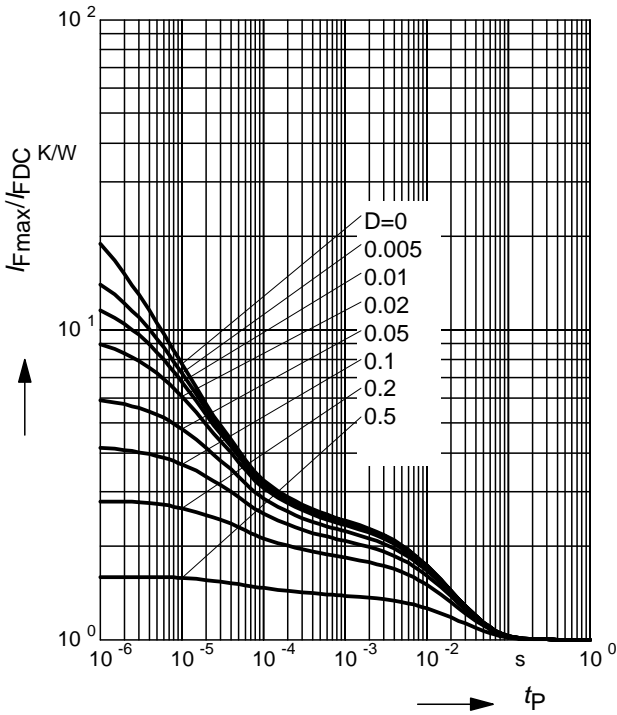
BAW56U



**Permissible Pulse Load**

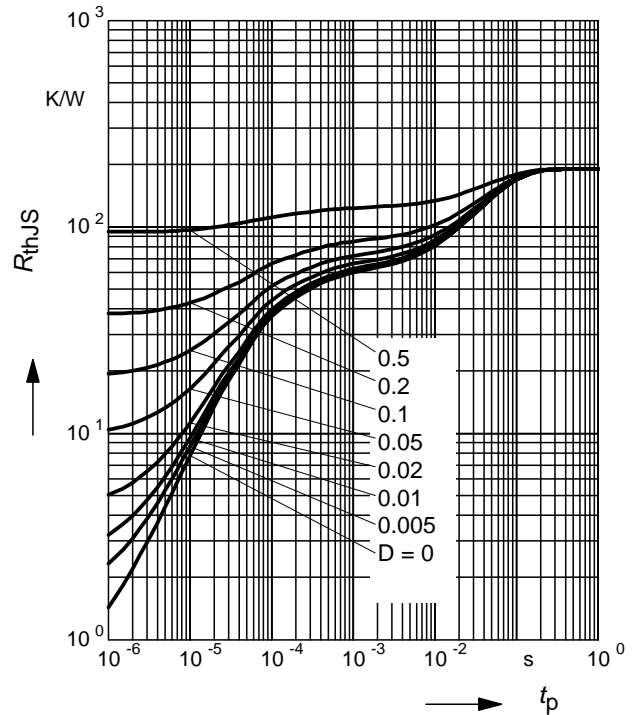
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAW56U



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

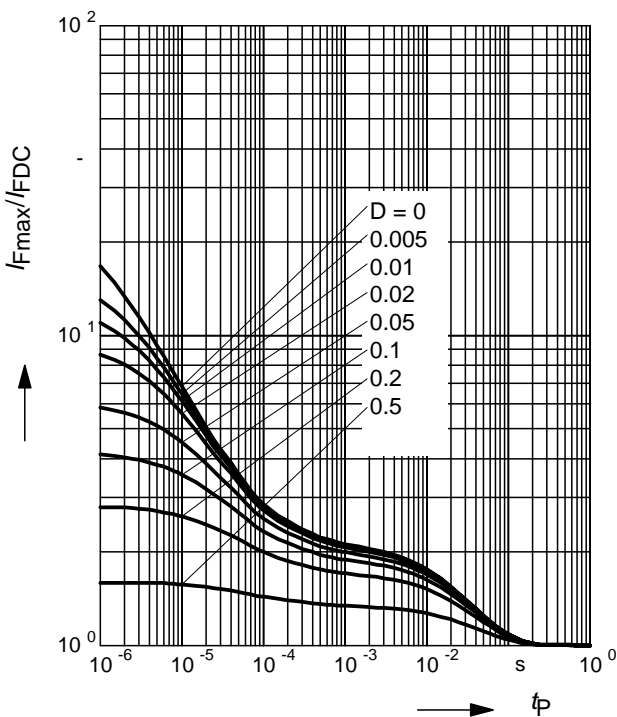
BAW56W



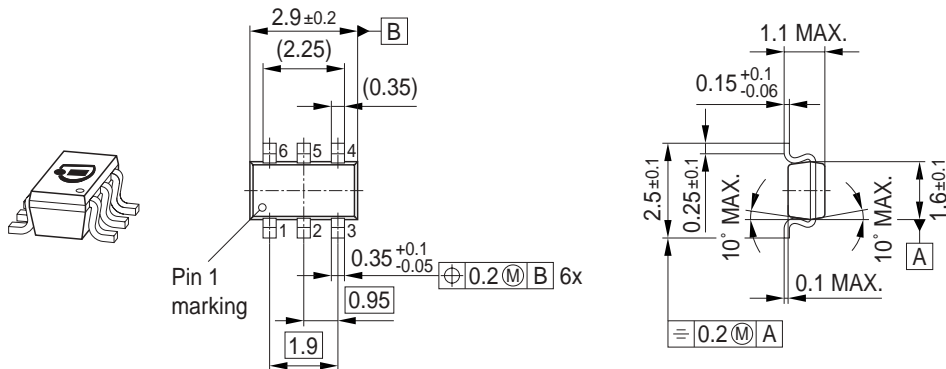
**Permissible Pulse Load**

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

BAW56W



Package Outline



Foot Print



Marking Layout (Example)

Small variations in positioning of Date code, Type code and Manufacture are possible.



Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



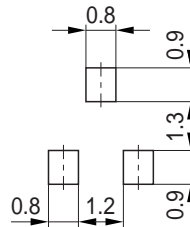


Package Outline

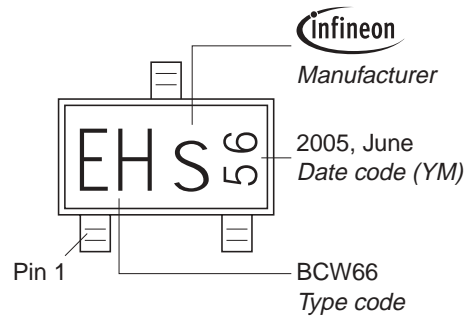


1) Lead width can be 0.6 max. in dambar area

Foot Print

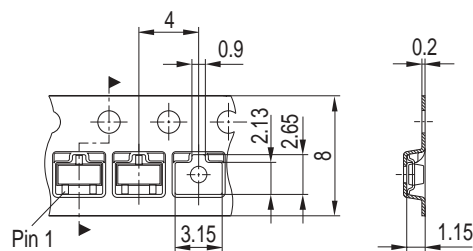


Marking Layout (Example)



Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
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Package Outline



Foot Print

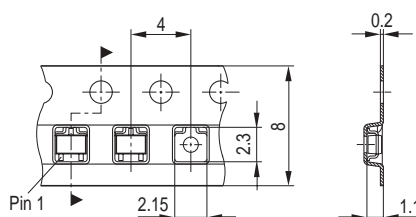


Marking Layout (Example)

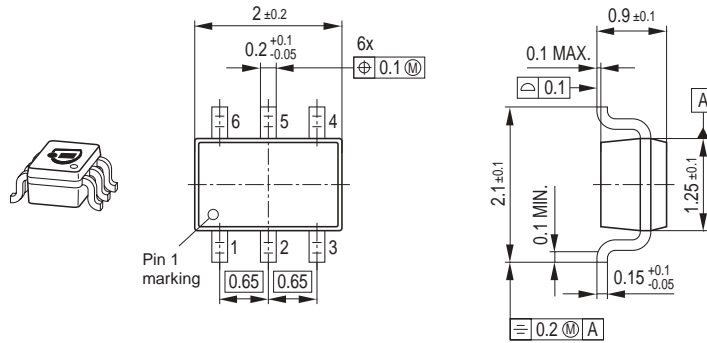


Standard Packing

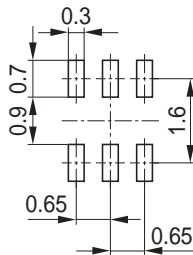
Reel  $\varnothing 180$  mm = 3.000 Pieces/Reel  
 Reel  $\varnothing 330$  mm = 10.000 Pieces/Reel



Package Outline



Foot Print



Marking Layout (Example)

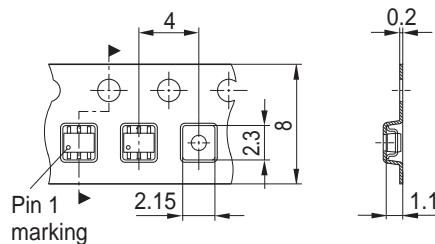
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