

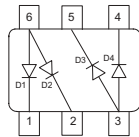
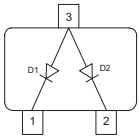
Silicon Switching Diode

- For high-speed switching applications
- Common anode configuration
- BAW56S / U: For orientation in reel see package information below
- Pb-free (RoHS compliant) package¹⁾
- 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 |

¹Pb-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 ¹⁾ | R_{thJS} | | K/W |
| BAW56 | | 360 | |
| BAW56S | | 260 | |
| BAW56U | | 240 | |
| BAW56W | | 190 | |

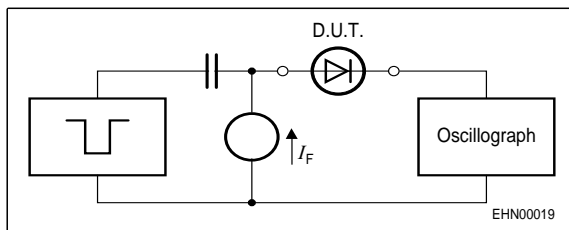
¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

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

| Parameter | Symbol | Values | | | Unit |
|---|------------|--------|------|------------------------------------|---------------|
| | | min. | typ. | max. | |
| DC Characteristics | | | | | |
| 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 | μA |
| 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 |

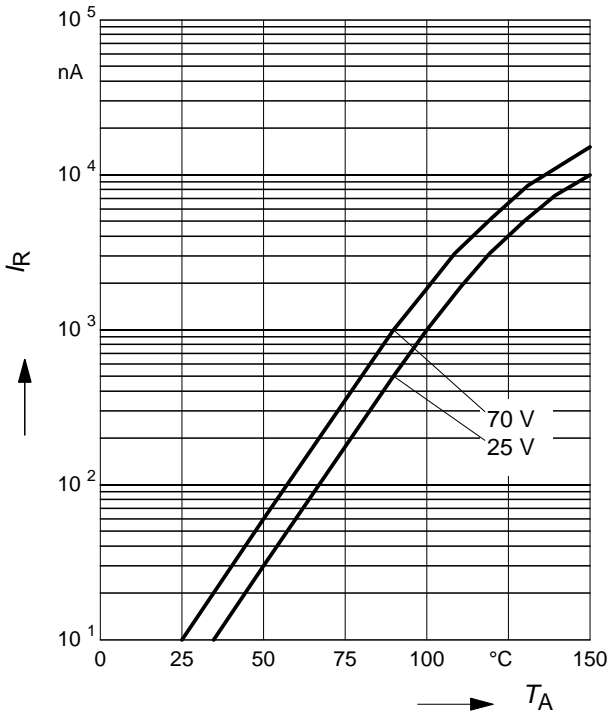
Test circuit for reverse recovery time


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

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

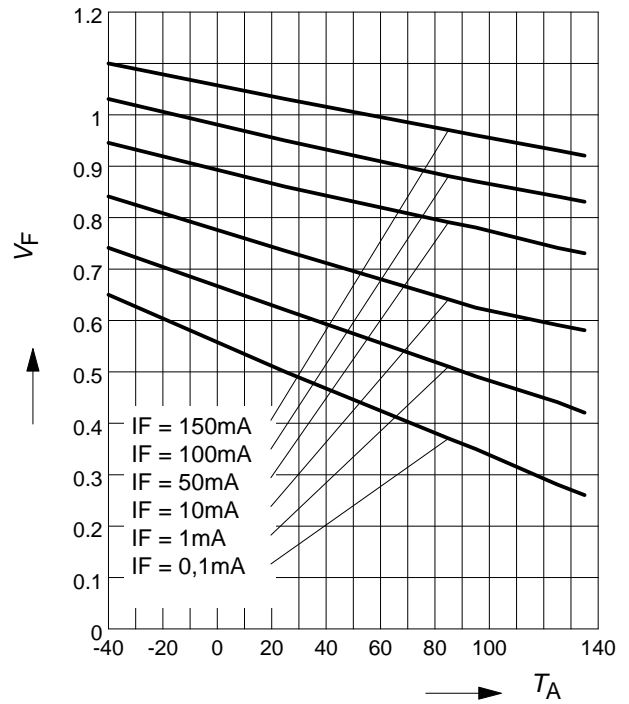
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$



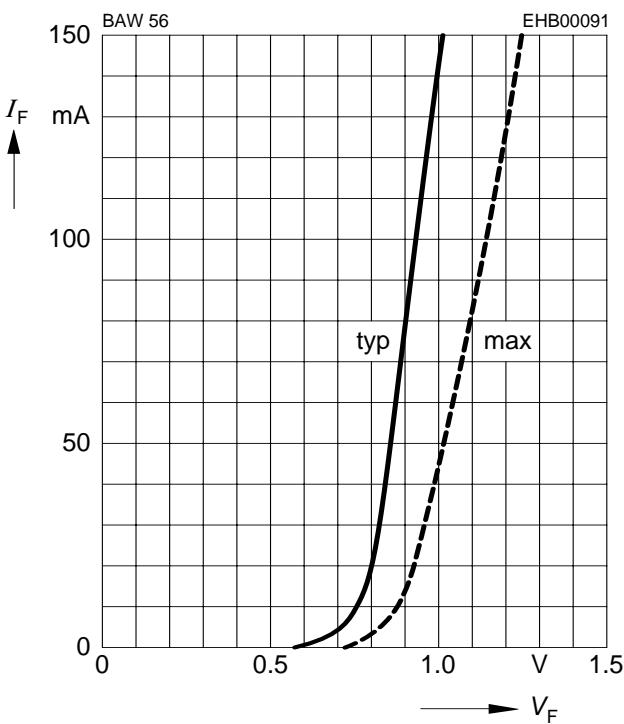
Forward Voltage $V_F = f(T_A)$

$I_F = \text{Parameter}$



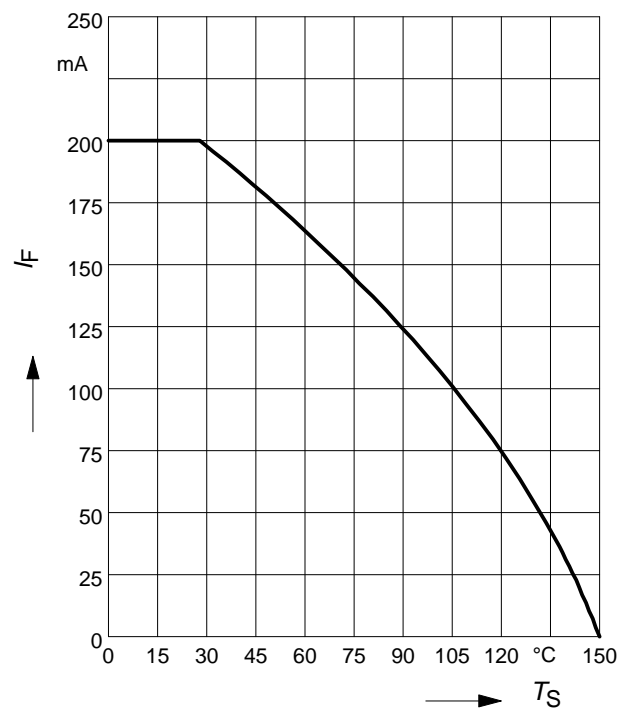
Forward current $I_F = f(V_F)$

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



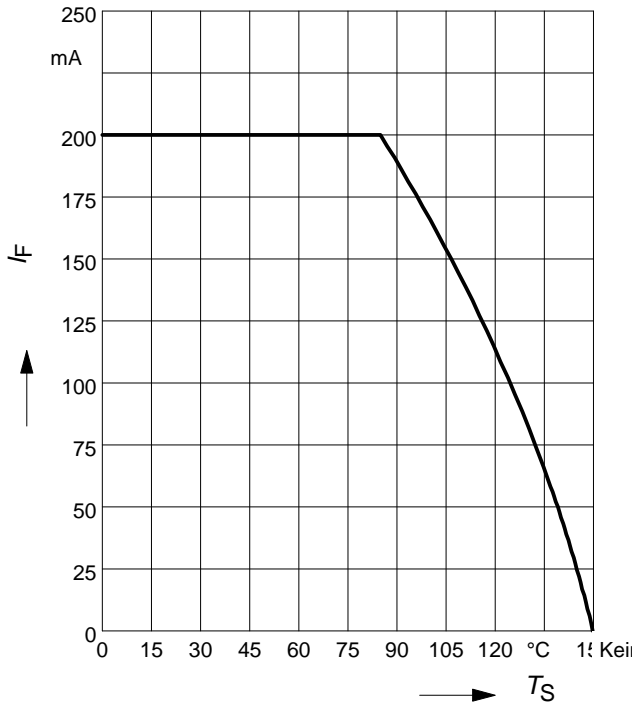
Forward current $I_F = f(T_S)$

BAW56



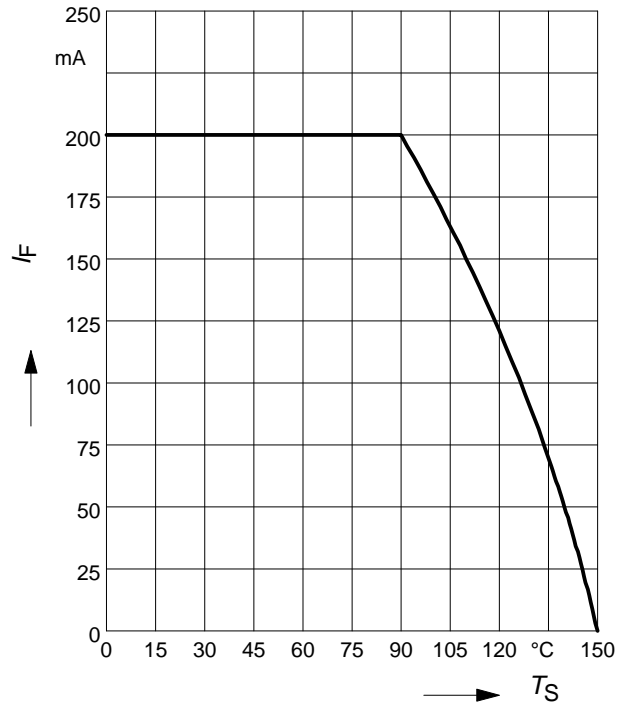
Forward current $I_F = f(T_S)$

BAW56S



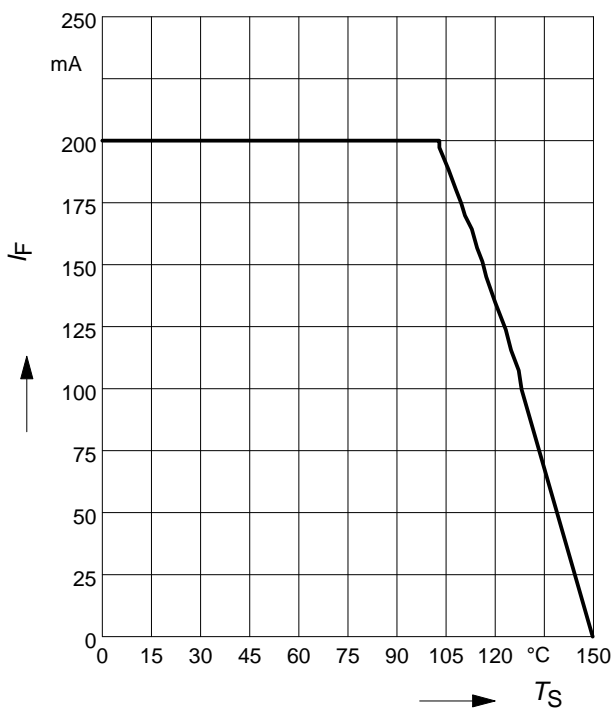
Forward current $I_F = f(T_S)$

BAW56U



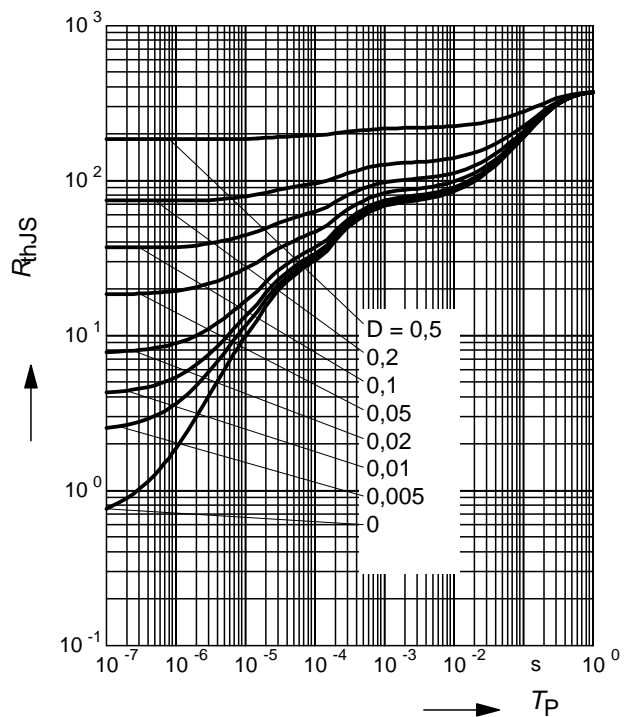
Forward current $I_F = f(T_S)$

BAW56W



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

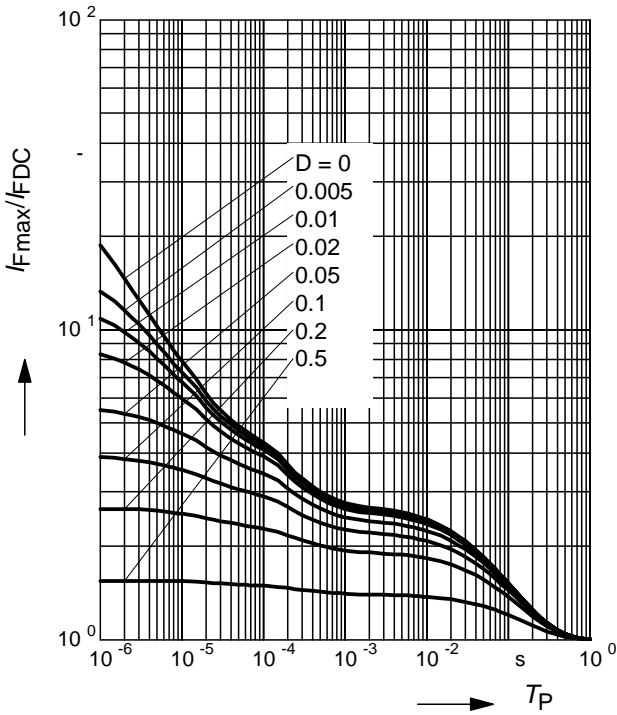
BAW56



Permissible Pulse Load

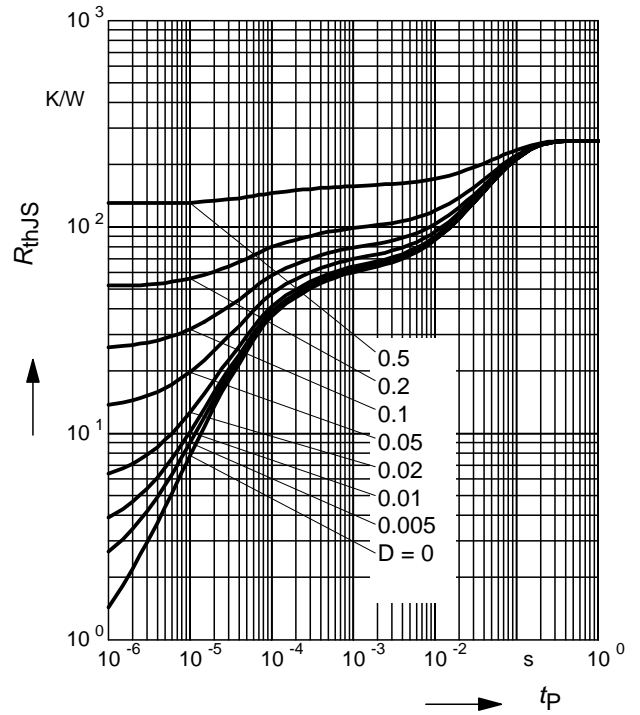
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAW56



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

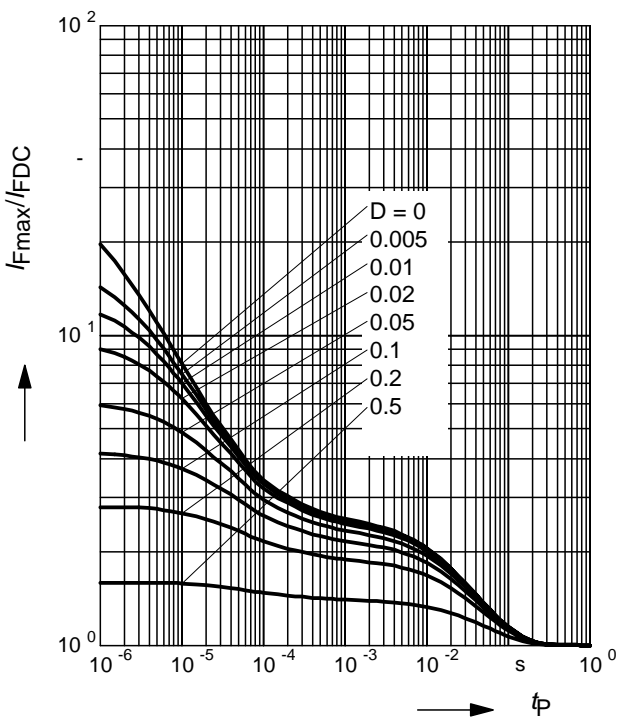
BAW56S



Permissible Pulse Load

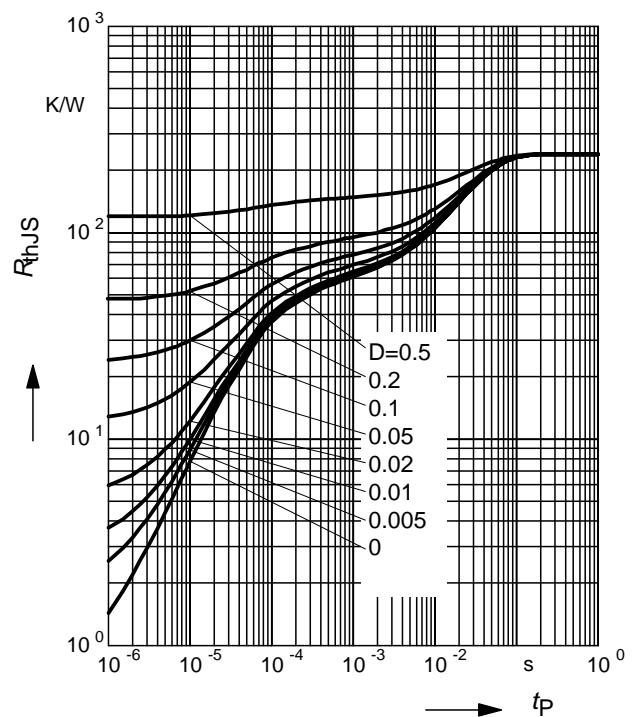
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAW56S



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

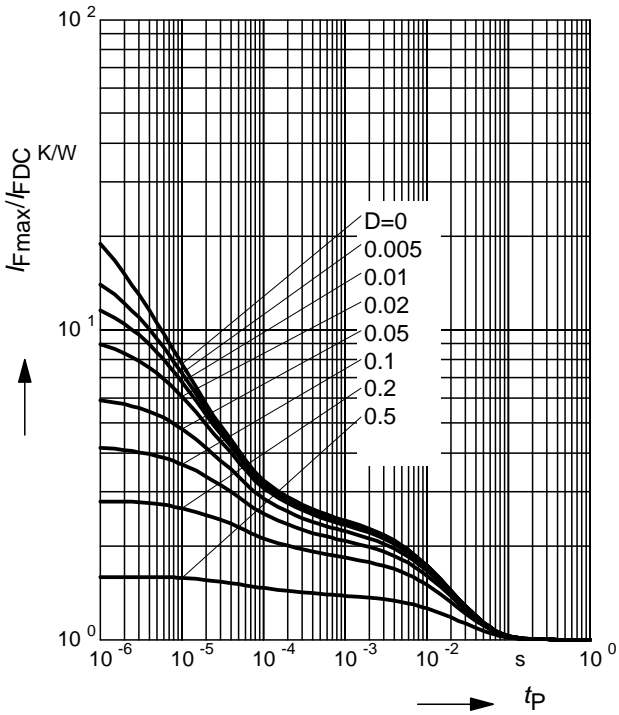
BAW56U



Permissible Pulse Load

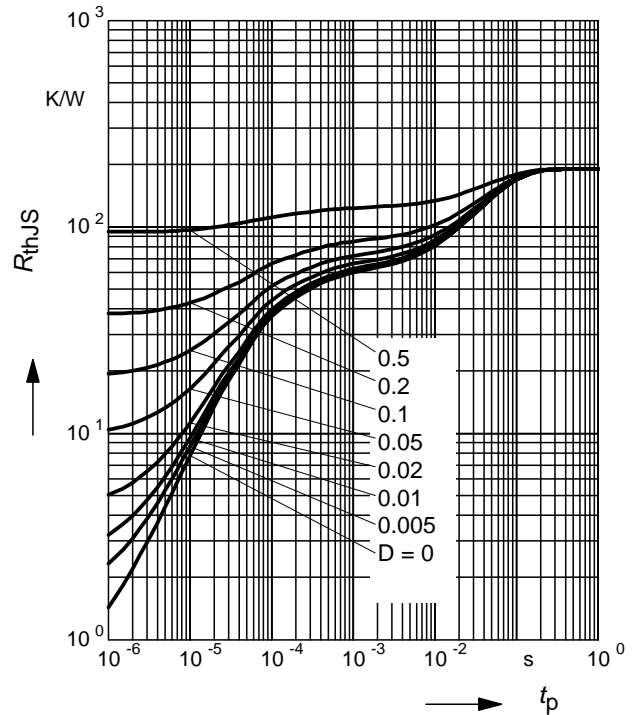
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAW56U



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

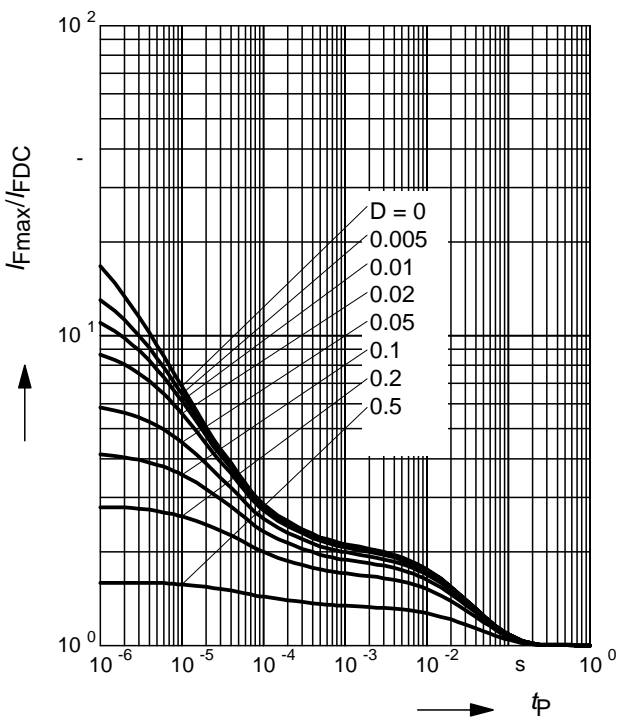
BAW56W



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.

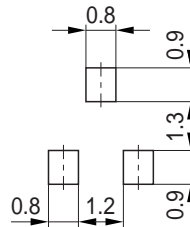


Package Outline

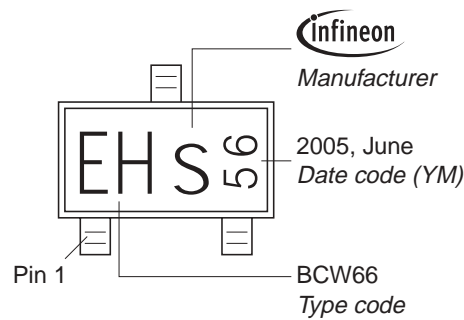


1) Lead width can be 0.6 max. in dambar area

Foot Print

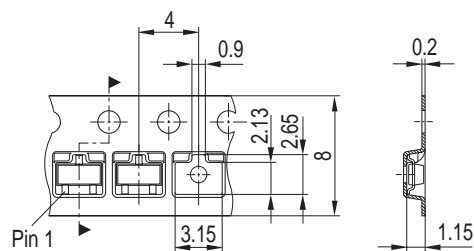


Marking Layout (Example)



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Foot Print

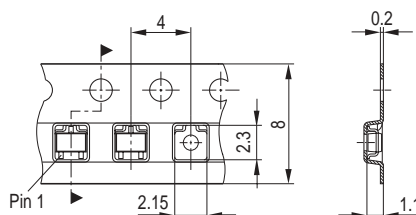


Marking Layout (Example)

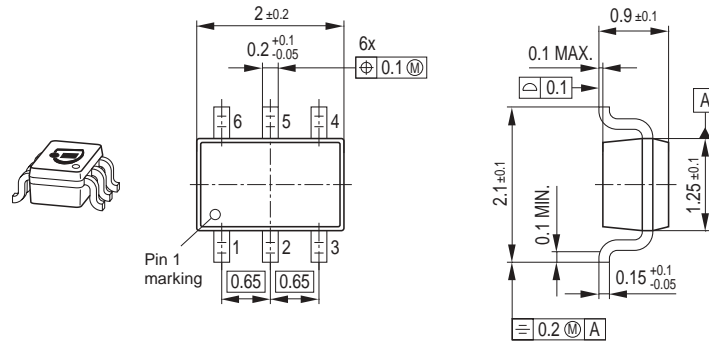


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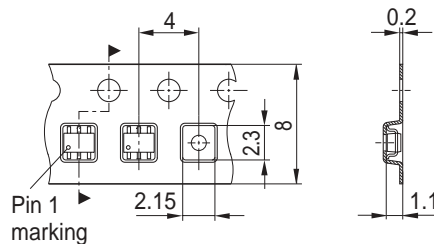
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