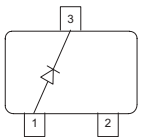
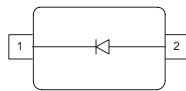
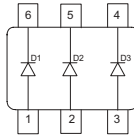


Silicon Switching Diode

- For high-speed switching applications
- High breakdown voltage
- Pb-free (RoHS compliant) package ¹⁾
- Qualified according AEC Q101


BAS21

BAS21-03W

BAS21U


| Type | Package | Configuration | Marking |
|-----------|---------|-----------------|---------|
| BAS21 | SOT23 | single | JSs |
| BAS21-03W | SOD323 | single | D |
| BAS21U | SC74 | parallel triple | JSs |

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

| Parameter | Symbol | Value | Unit |
|---|-----------|-------------|------------------|
| Diode reverse voltage | V_R | 200 | V |
| Peak reverse voltage | V_{RM} | 250 | |
| Forward current | I_F | 250 | mA |
| Peak forward current | I_{FM} | 625 | |
| Peak forward current | I_{FM} | 625 | mA |
| Surge forward current, $t = 10 \mu\text{s}$ | I_{FS} | 4 | A |
| Non-repetitive peak surge forward current | I_{FSM} | - | |
| Total power dissipation | P_{tot} | | mW |
| BAS21, $T_S \leq 70^\circ\text{C}$ | | 350 | |
| BAS21-03W, $T_S \leq 124^\circ\text{C}$ | | 250 | |
| BAS21U, $T_S \leq 122^\circ\text{C}$ | | 250 | |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -65 ... 150 | |

¹Pb-containing package may be available upon special request

Thermal Resistance

| Parameter | Symbol | Value | Unit |
|--|------------|-------|------|
| Junction - soldering point ¹⁾ | R_{thJS} | | K/W |
| BAS21 | | ≤ 230 | |
| BAS21-03W | | ≤ 105 | |
| BAS21U | | ≤ 110 | |

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

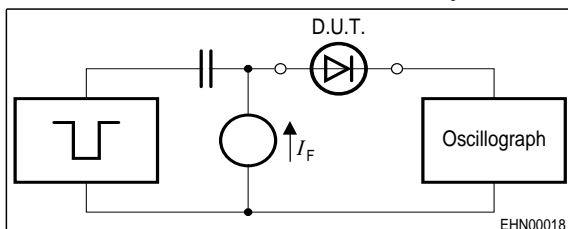
| Parameter | Symbol | Values | | | Unit |
|-----------|--------|--------|------|------|------|
| | | min. | typ. | max. | |

DC Characteristics

| | | | | | |
|---|------------|-----|---|------------|---------------|
| Breakdown voltage $I_{(BR)} = 100 \mu\text{A}$ | $V_{(BR)}$ | 250 | - | - | V |
| Reverse current $V_R = 200 \text{ V}$ $V_R = 200 \text{ V}, T_A = 150 \text{ }^\circ\text{C}$ | I_R | - | - | 0.1 100 | μA |
| Forward voltage $I_F = 100 \text{ mA}$ $I_F = 200 \text{ mA}$ | V_F | - | - | 1 1.25 | V |

AC Characteristics

| | | | | | |
|--|----------|---|---|----|----|
| Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$ | C_T | - | - | 5 | pF |
| Reverse recovery time $I_F = 30 \text{ mA}, I_R = 30 \text{ mA}$, measured at $I_R = 3 \text{ mA}$, $R_L = 100 \Omega$ | t_{rr} | - | - | 50 | ns |

Test circuit for reverse recovery time


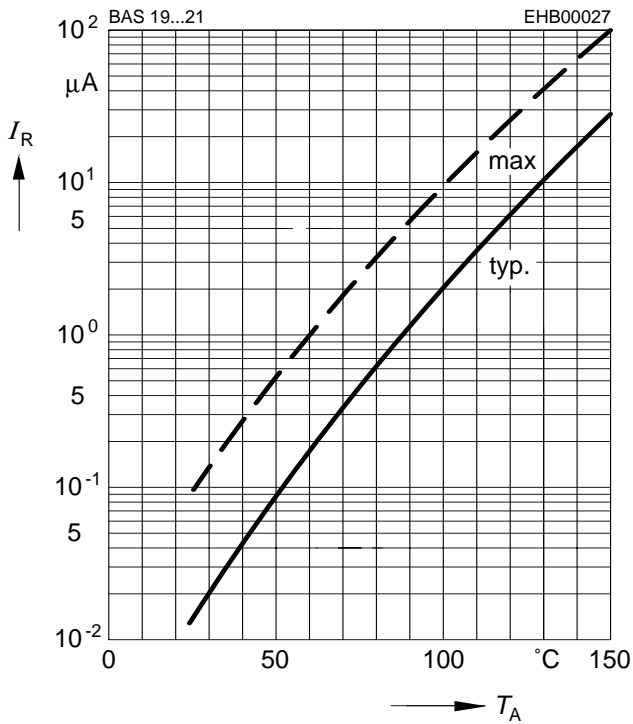
Puls generator: $t_p = 1 \mu\text{s}$, $D = 0.05$
 $t_r = 0.6 \text{ ns}$, $R_i = 50 \Omega$

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

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

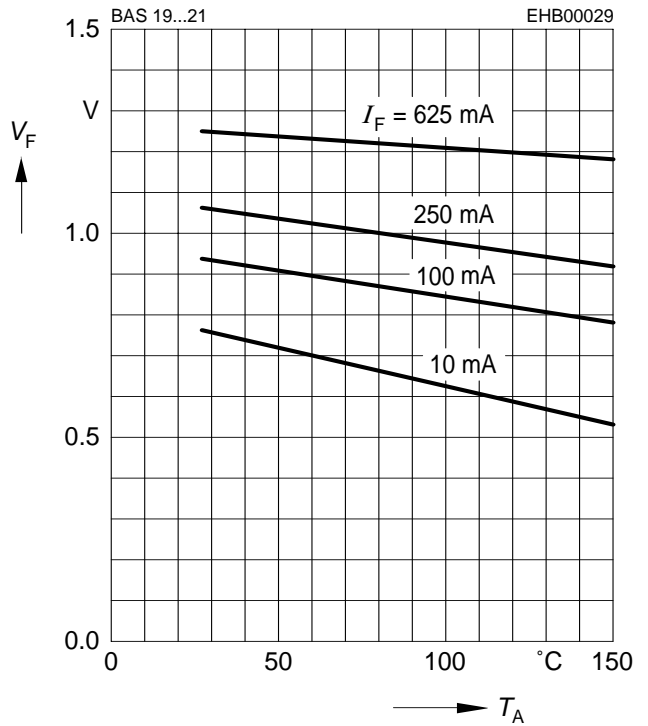
Reverse current $I_R = f(T_A)$

$V_R = 200V$

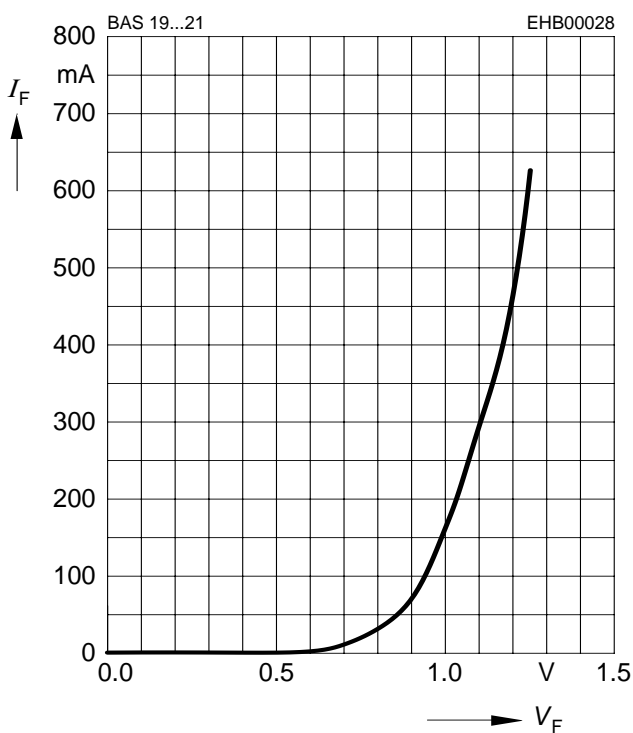


Forward Voltage $V_F = f(T_A)$

$I_F = \text{Parameter}$

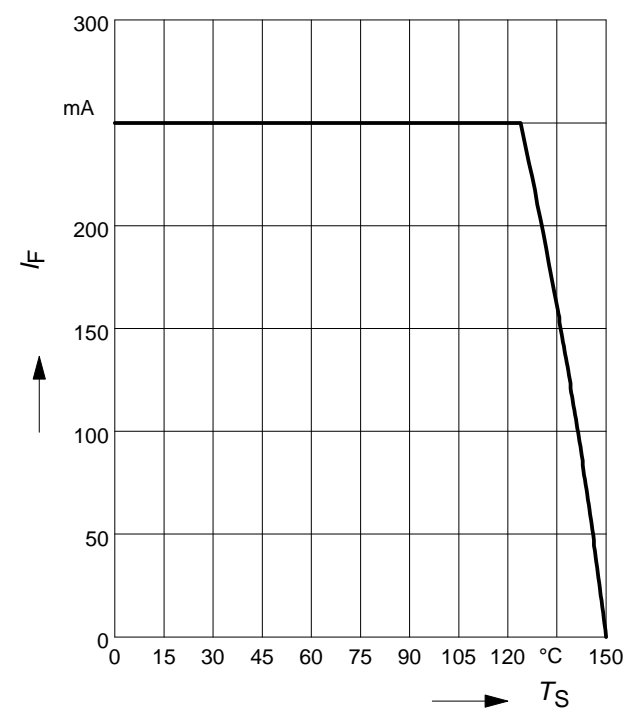


Forward current $I_F = f(V_F)$



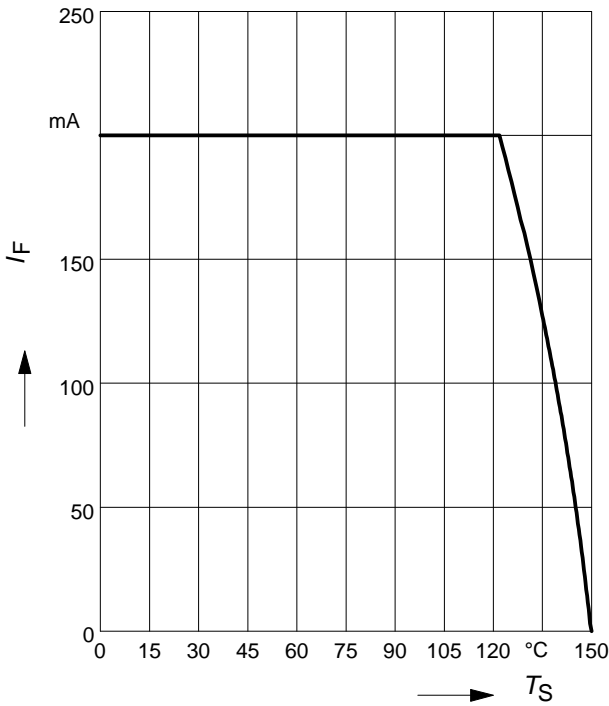
Forward current $I_F = f(T_S)$

BAS21-03W



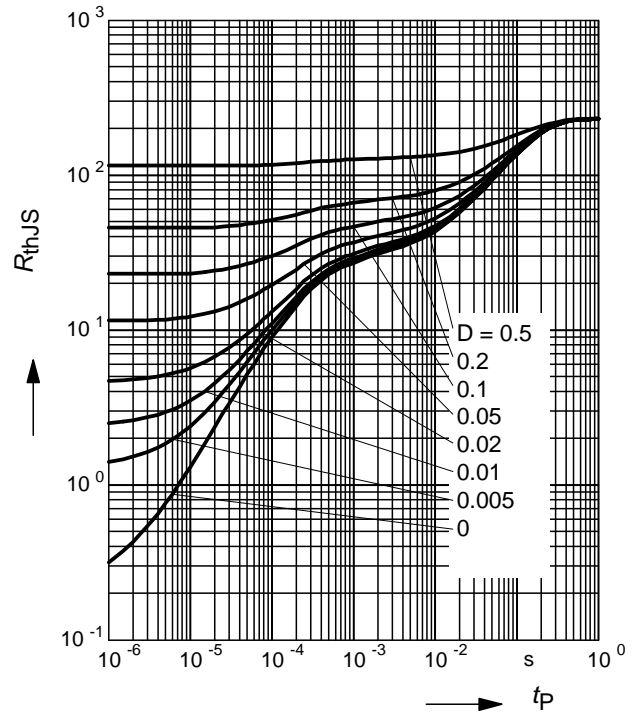
Forward current $I_F = f(T_S)$

BAS21U



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

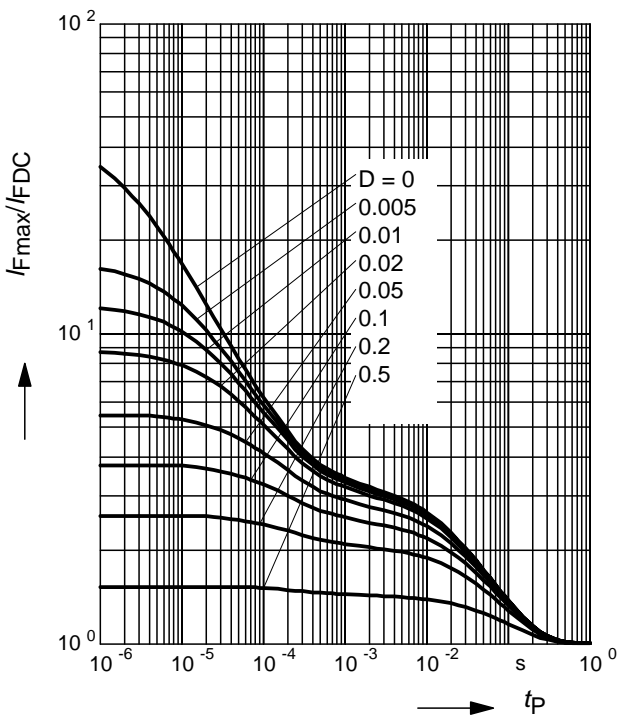
BAS21



Permissible Pulse Load

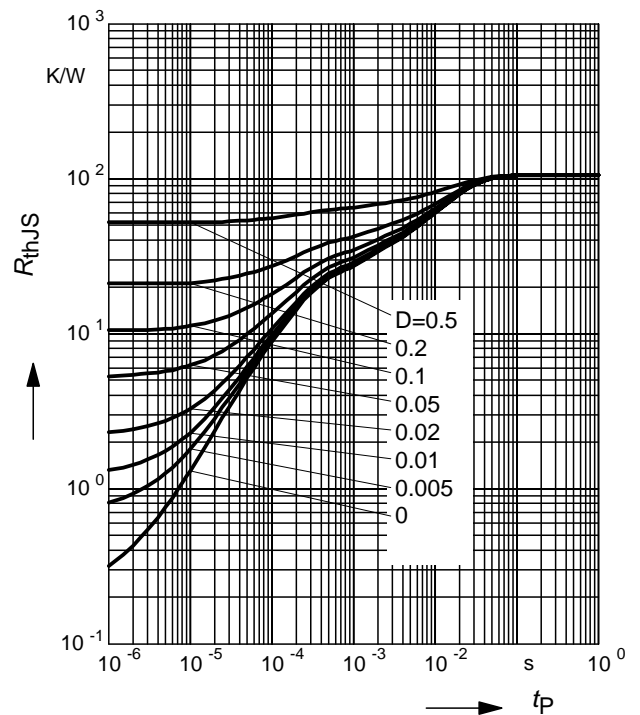
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS21



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

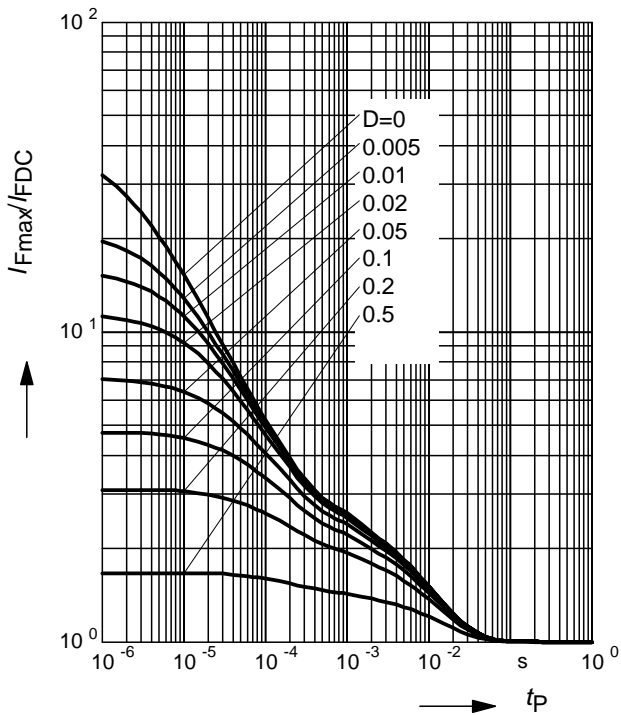
BAS21-03W



Permissible Pulse Load

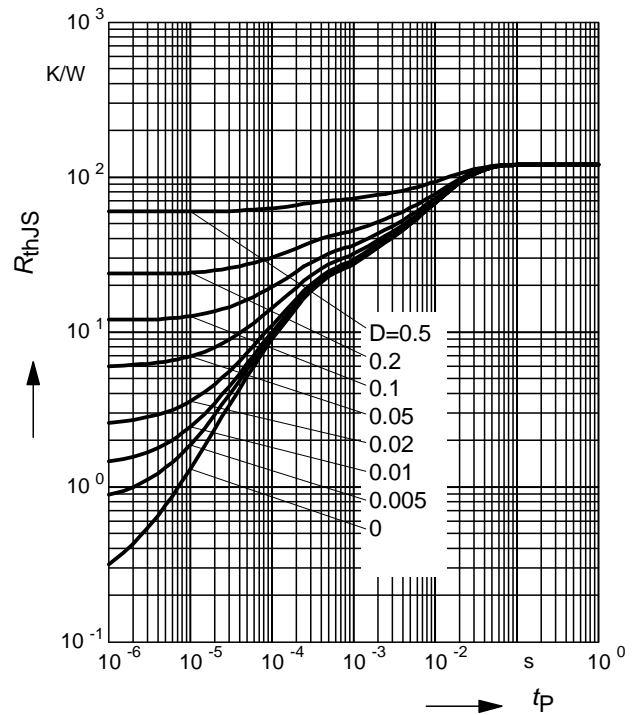
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAS21-03W



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

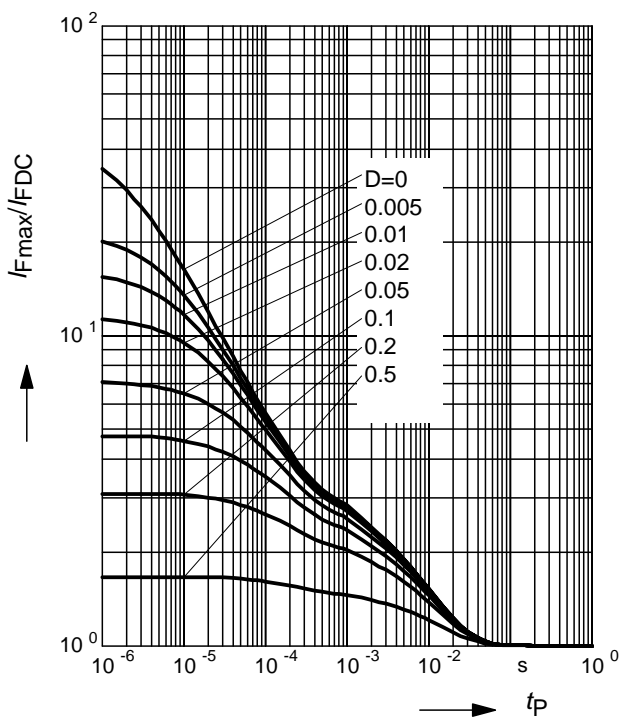
BAS21U



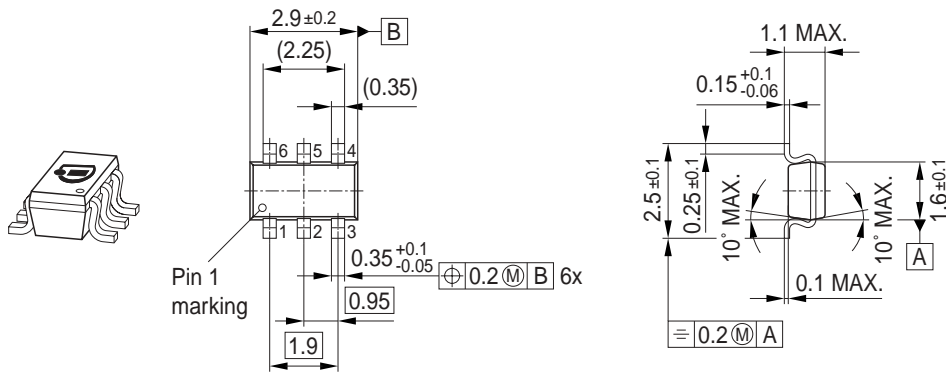
Permissible Pulse Load

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

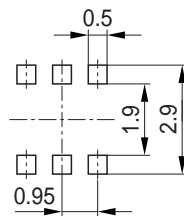
BAS21U



Package Outline

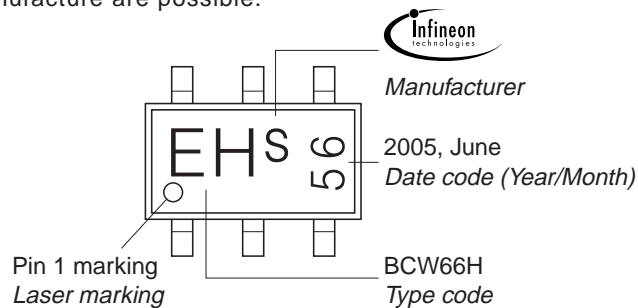


Foot Print



Marking Layout (Example)

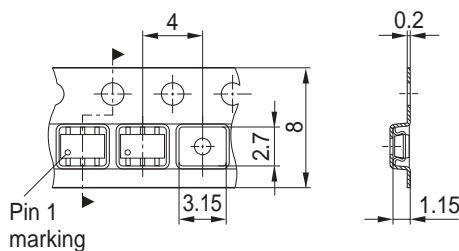
Small variations in positioning of Date code, Type code and Manufacture are possible.



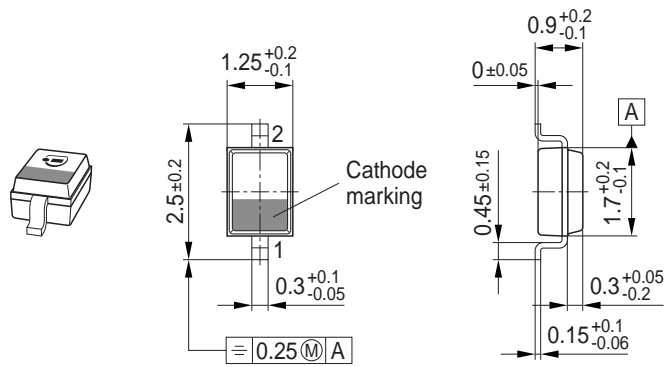
Standard Packing

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

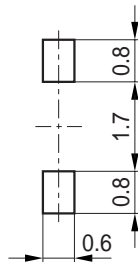
For symmetric types no defined Pin 1 orientation in reel.



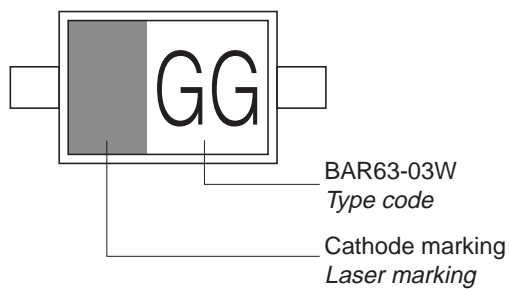
Package Outline



Foot Print

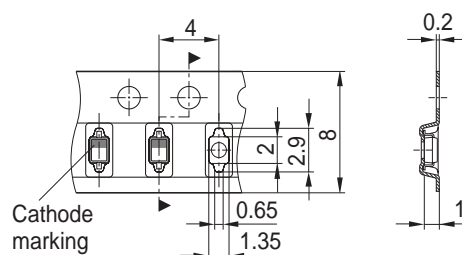


Marking Layout (Example)

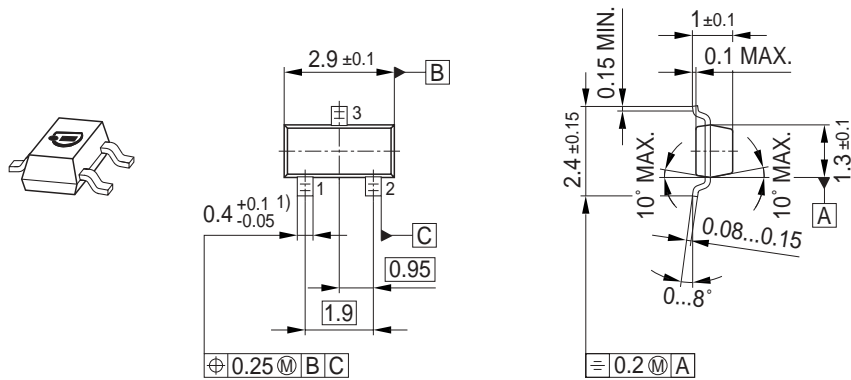


Standard Packing

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

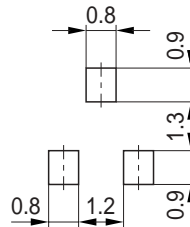


Package Outline

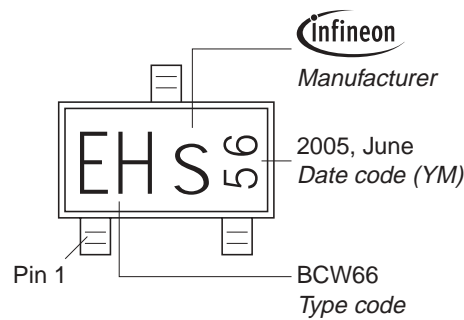


1) Lead width can be 0.6 max. in dambar area

Foot Print

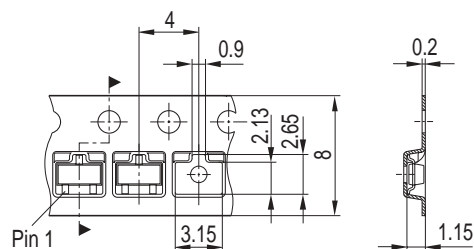


Marking Layout (Example)



Standard Packing

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



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