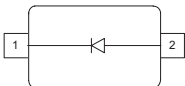
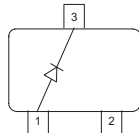
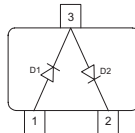
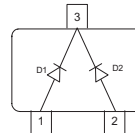
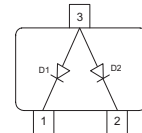
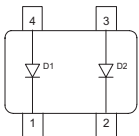


Silicon Schottky Diode

- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101¹⁾


BAS140W
BAS40-02L

BAS40

BAS40-04

BAS40-05
BAS40-05W

BAS40-06
BAS40-06W

BAS40-07
BAS40-07W

ESD (Electrostatic discharge) sensitive device, observe handling precaution!

| Type | Package | Configuration | Marking |
|------------|----------|------------------|---------|
| BAS140W | SOD323 | single | white 4 |
| BAS40 | SOT23 | single | 43s |
| BAS40-02L* | TSLP-2-1 | single, leadless | FF |
| BAS40-04 | SOT23 | series | 44s |
| BAS40-05 | SOT23 | common cathode | 45s |
| BAS40-05W | SOT323 | common cathode | 45s |
| BAS40-06 | SOT23 | common anode | 46s |
| BAS40-06W | SOT323 | common anode | 46s |
| BAS40-07 | SOT143 | parallel pair | 47s |
| BAS40-07W | SOT343 | parallel pair | 47s |

¹⁾ BAS40-02L is not qualified according AEC Q101

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

| Parameter | Symbol | Value | Unit |
|---|-----------|--|------|
| Diode reverse voltage | V_R | 40 | V |
| Forward current | I_F | 120 | mA |
| Non-repetitive peak surge forward current $t \leq 10\text{ms}$ | I_{FSM} | 200 | |
| Total power dissipation BAS140W, $T_S \leq 113\text{°C}$ BAS40, BAS40-07, $T_S \leq 81\text{°C}$ BAS40-02L, $T_S \leq 127\text{°C}$ BAS40-04, BAS40-06, $T_S \leq 56\text{°C}$ BAS40-06W, $T_S \leq 106\text{°C}$ BAS40-05, $T_S \leq 31\text{°C}$ BAS40-05W, $T_S \leq 98\text{°C}$ BAS40-07W, $T_S \leq 118\text{°C}$ | P_{tot} | 250 250 250 250 250 250 250 250 | mW |
| Junction temperature | T_j | 150 | |
| Operating temperature range | T_{op} | -55 ... 150 | |
| Storage temperature | T_{stg} | -55 ... 150 | |

Thermal Resistance

| Parameter | Symbol | Value | Unit |
|--|------------|------------|------|
| Junction - soldering point ¹⁾ | R_{thJS} | | K/W |
| BAS140W | | ≤ 150 | |
| BAS40, BAS40-07 | | ≤ 275 | |
| BAS40-02L | | ≤ 90 | |
| BAS40-04, BAS40-06 | | ≤ 375 | |
| BAS40-06W | | ≤ 175 | |
| BAS40-05 | | ≤ 475 | |
| BAS40-05W | | ≤ 205 | |
| BAS40-07W | | ≤ 125 | |

¹⁾For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

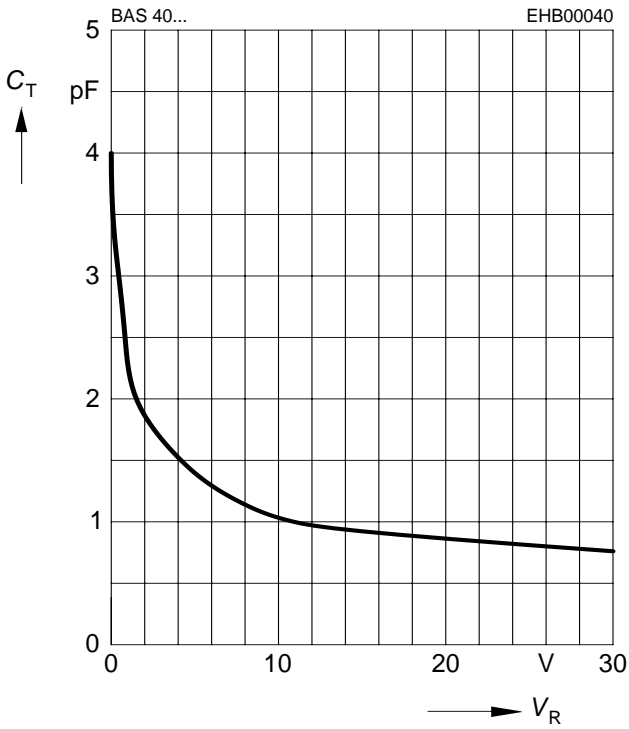
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|--------------|-------------------|-------------------|--------------------|---------------|
| | | min. | typ. | max. | |
| DC Characteristics | | | | | |
| Breakdown voltage $I_{(BR)} = 10 \mu\text{A}$ | $V_{(BR)}$ | 40 | - | - | V |
| Reverse current $V_R = 30 \text{ V}$ | I_R | - | - | 1 | μA |
| Forward voltage $I_F = 1 \text{ mA}$ $I_F = 10 \text{ mA}$ $I_F = 40 \text{ mA}$ | V_F | 250 350 600 | 310 450 720 | 380 500 1000 | mV |
| Forward voltage matching ¹⁾ $I_F = 10 \text{ mA}$ | ΔV_F | - | - | 20 | |
| AC Characteristics | | | | | |
| Diode capacitance $V_R = 0, f = 1 \text{ MHz}$ | C_T | - | 3 | 5 | pF |
| Differential forward resistance $I_F = 10 \text{ mA}, f = 10 \text{ kHz}$ | R_F | - | 10 | - | Ω |
| Charge carrier life time $I_F = 25 \text{ mA}$ | τ_{rr} | - | - | 100 | ps |

¹⁾ ΔV_F is the difference between lowest and highest V_F in a multiple diode component.

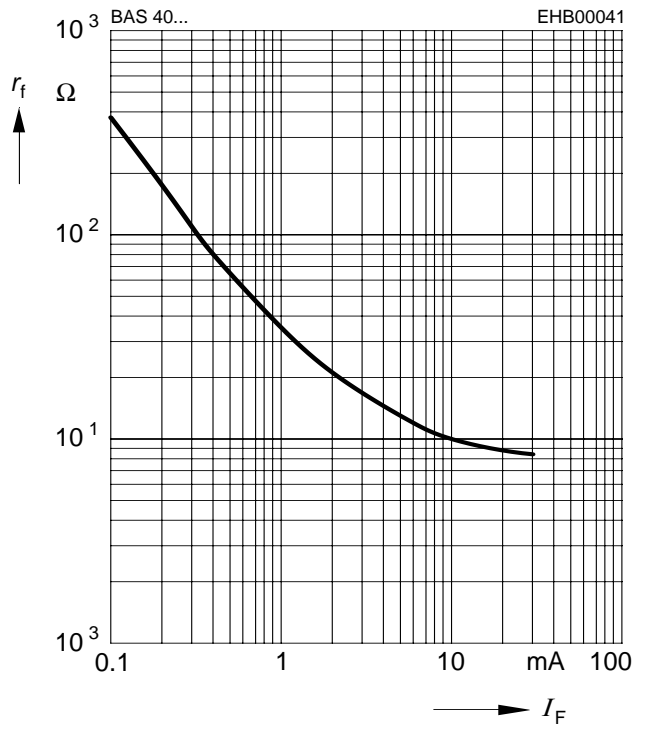
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



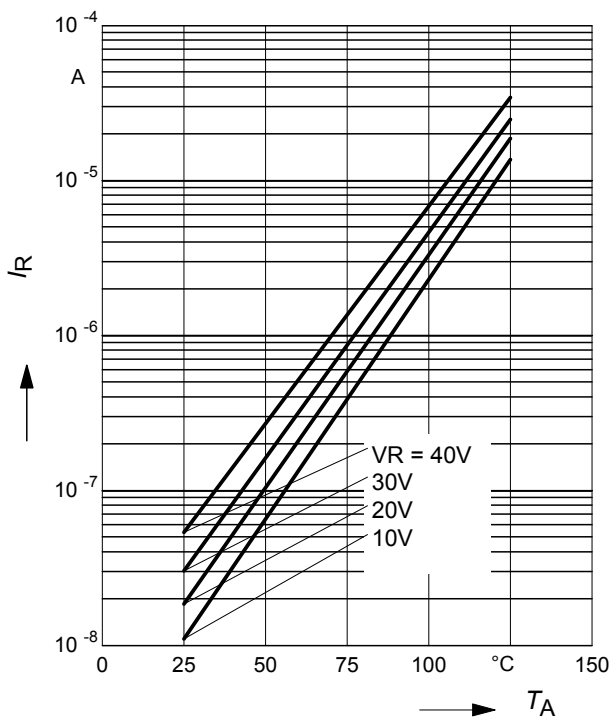
Forward resistance $r_f = f(I_F)$

$f = 10\text{kHz}$



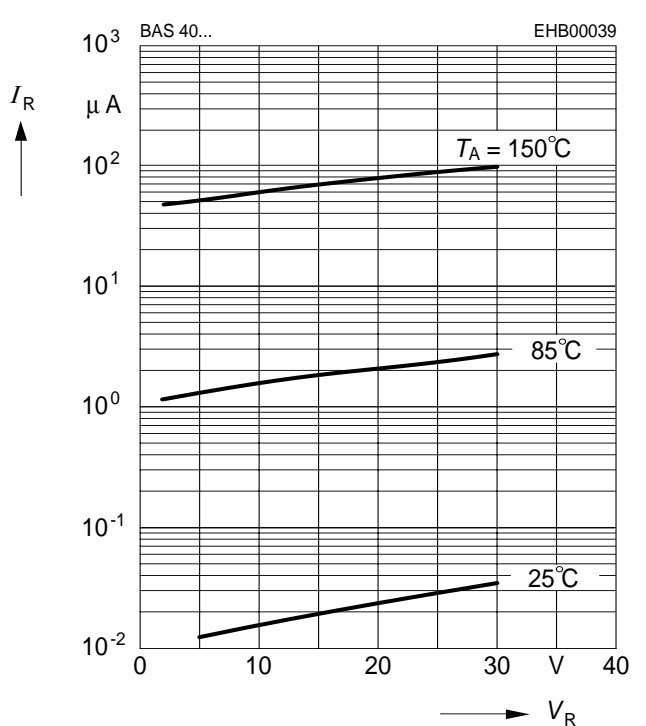
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$



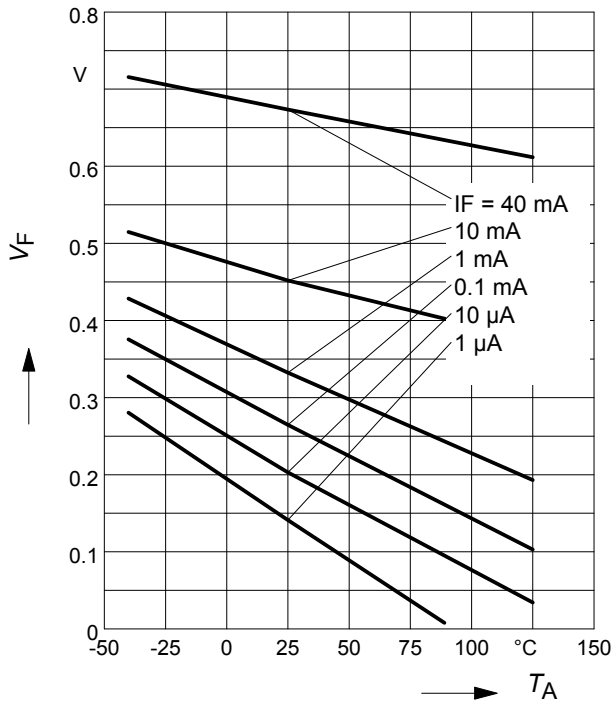
Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



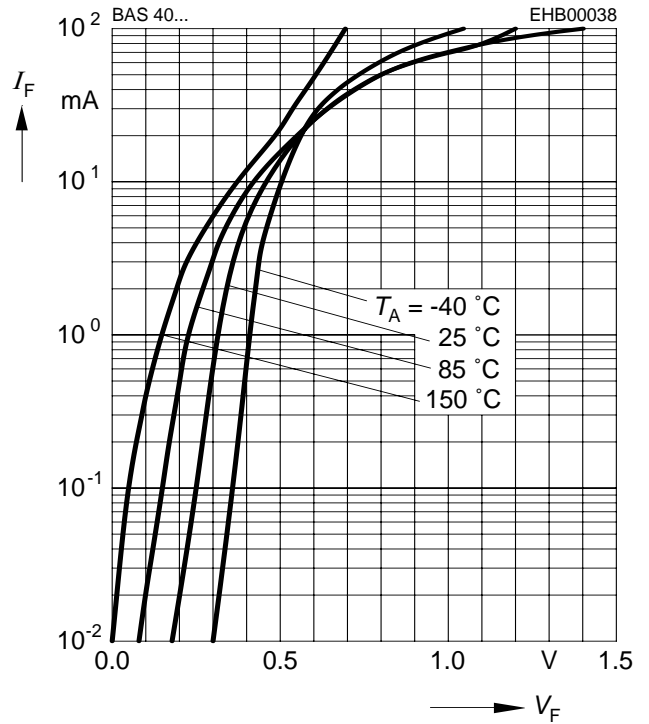
Forward Voltage $V_F = f(T_A)$

I_F = Parameter



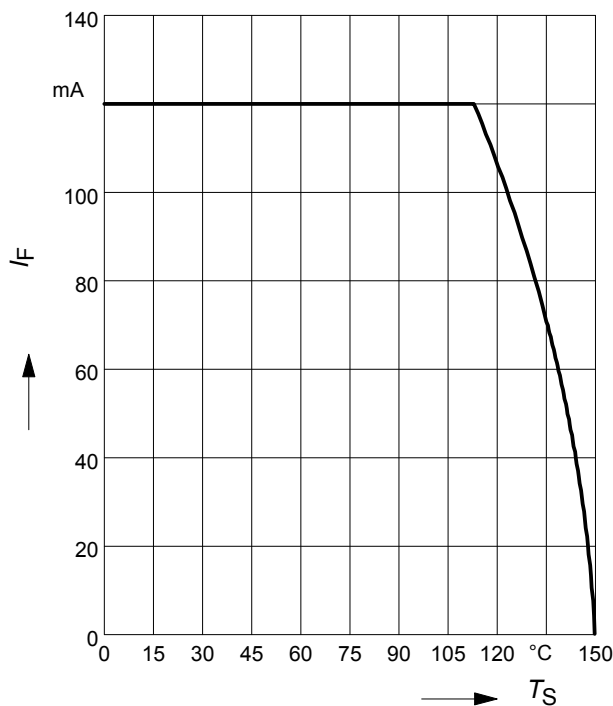
Forward current $I_F = f(V_F)$

T_A = Parameter



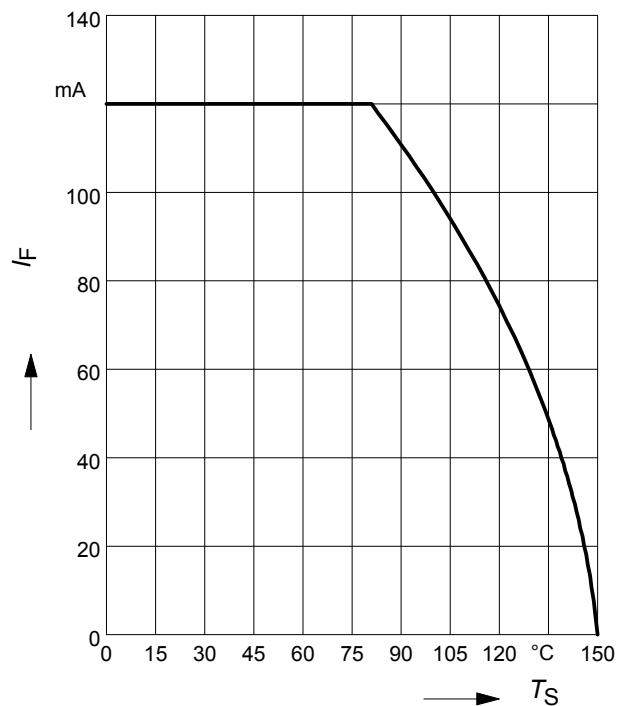
Forward current $I_F = f(T_S)$

BAS140W



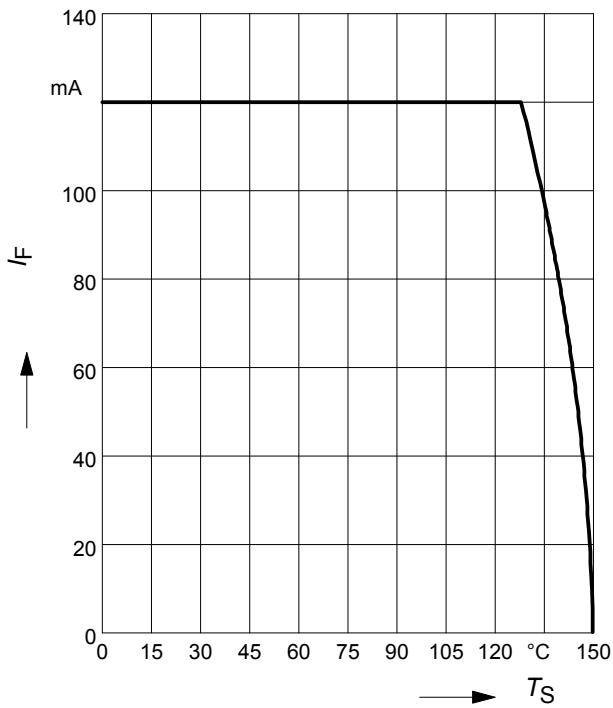
Forward current $I_F = f(T_S)$

BAS40, BAS40-07



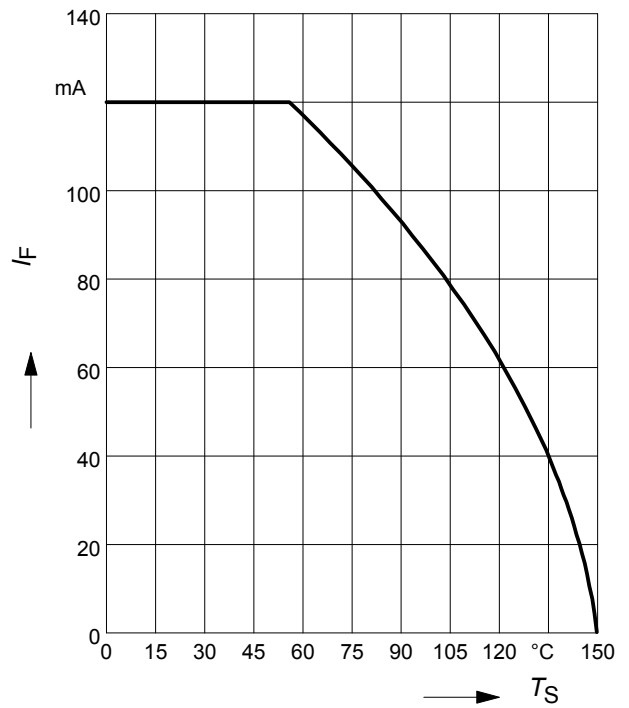
Forward current $I_F = f(T_S)$

BAS40-02L



Forward current $I_F = f(T_S)$

BAS40-04, BAS40-06



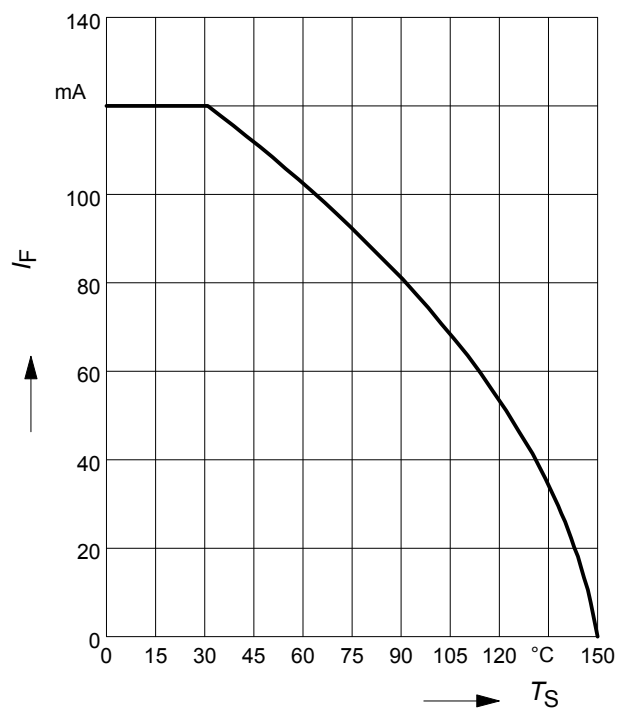
Forward current $I_F = f(T_S)$

BAS40-06W



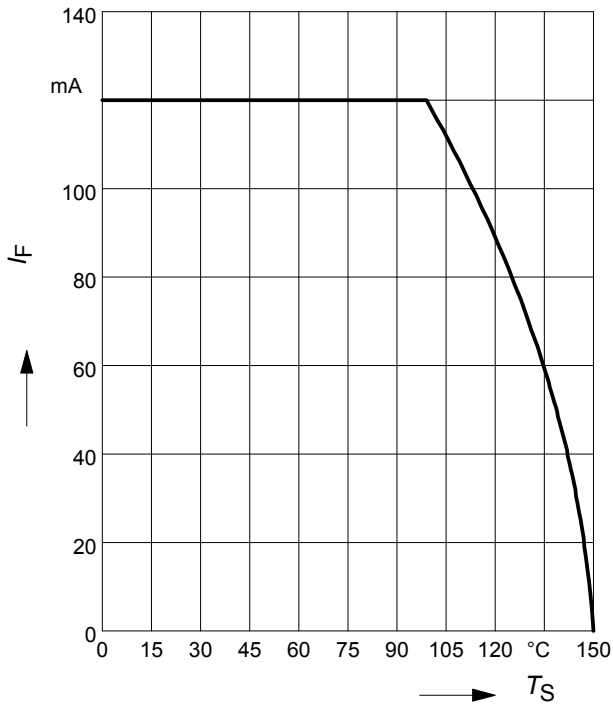
Forward current $I_F = f(T_S)$

BAS40-05



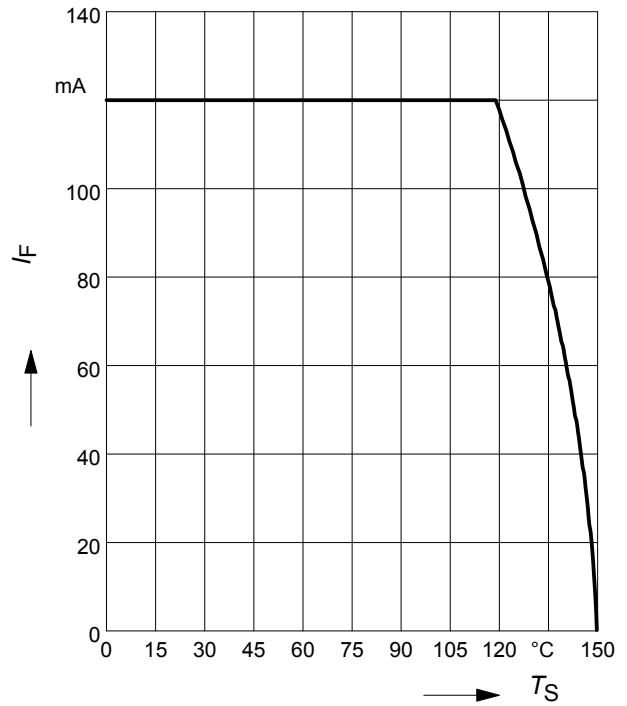
Forward current $I_F = f(T_S)$

BAS40-05W



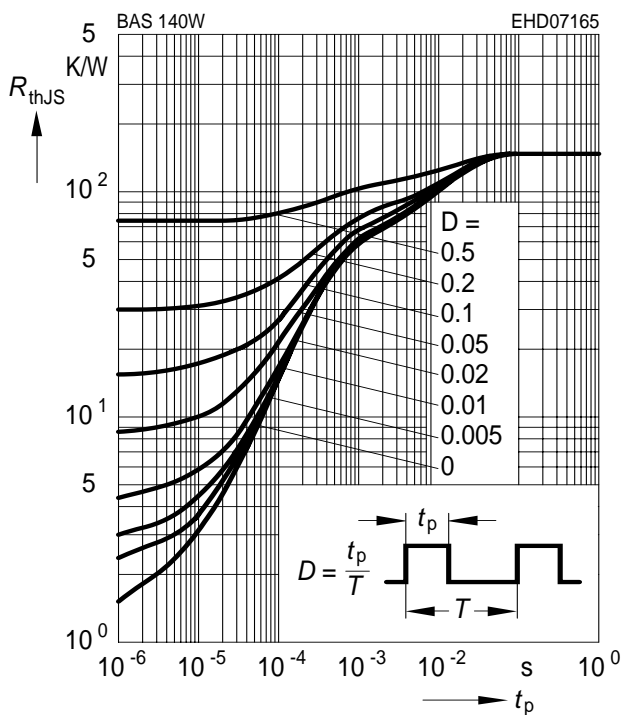
Forward current $I_F = f(T_S)$

BAS40-07W



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

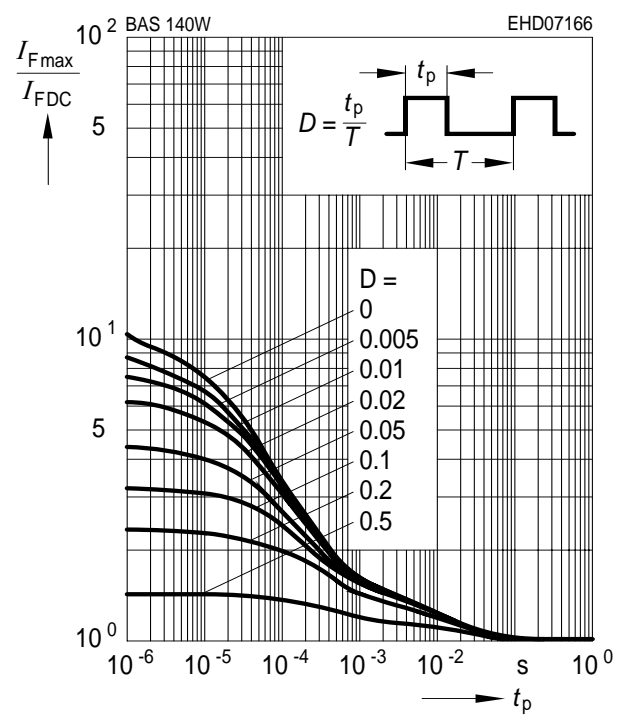
BAS140W



Permissible Pulse Load

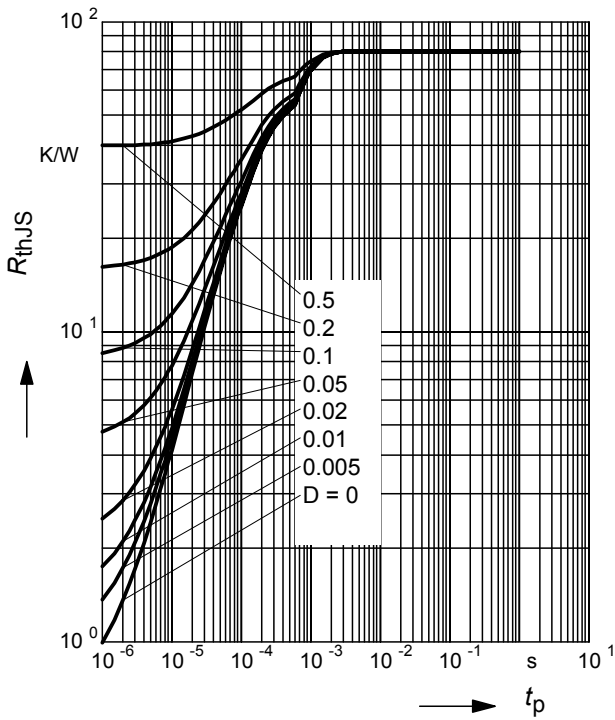
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS140W



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

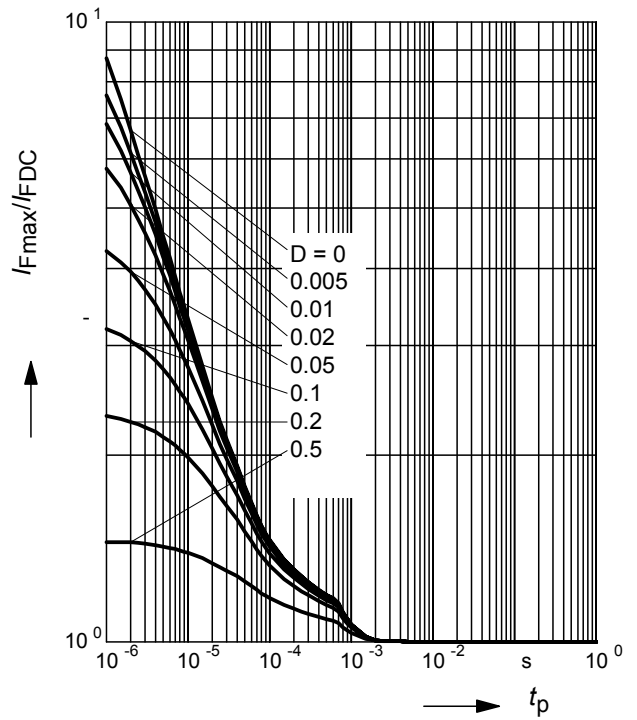
BAS40-02L



Permissible Pulse Load

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

BAS40-02L



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

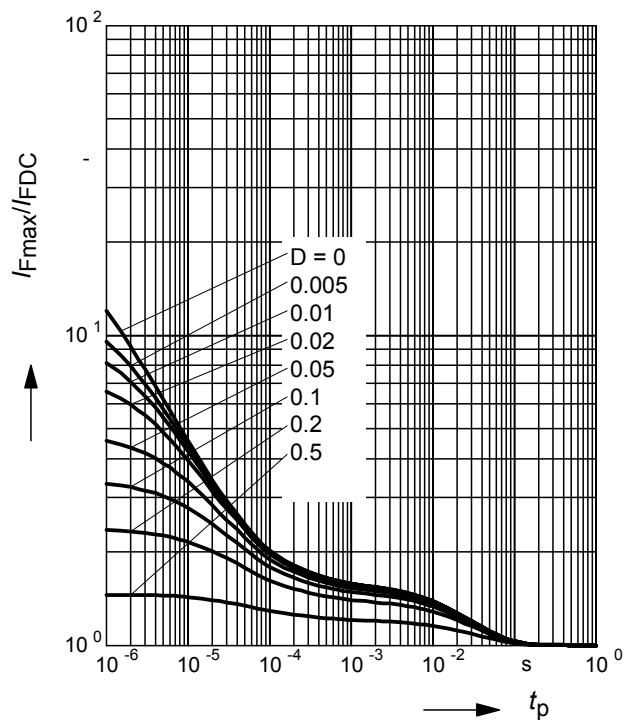
BAS40-06W



Permissible Pulse Load

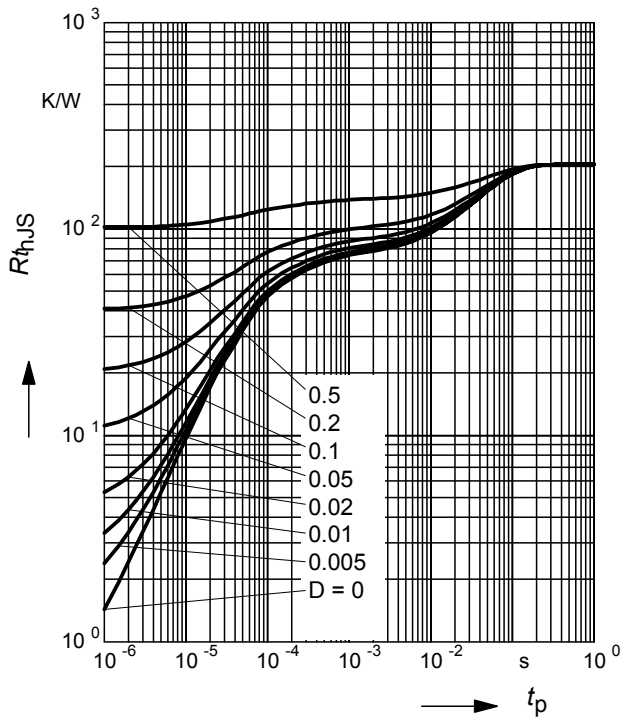
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS40-06W



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

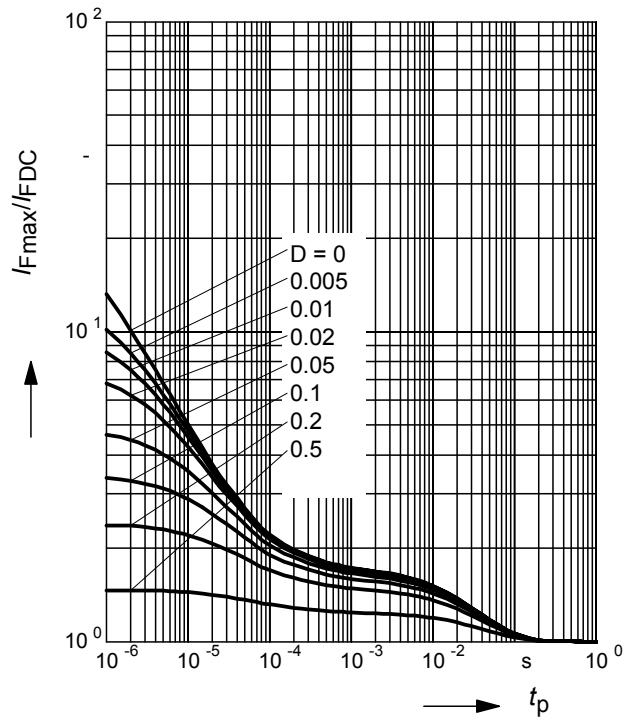
BAS40-05W



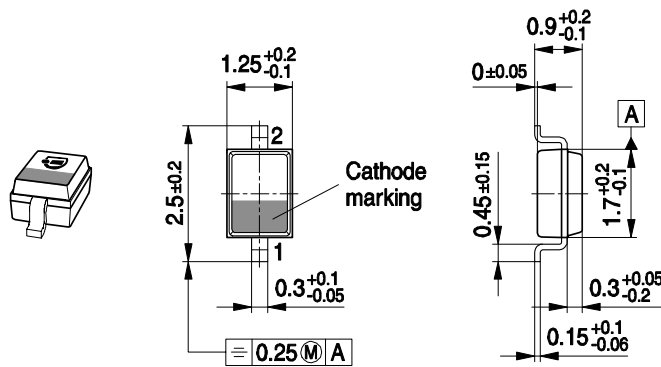
Permissible Pulse Load

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

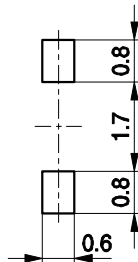
BAS40-05W



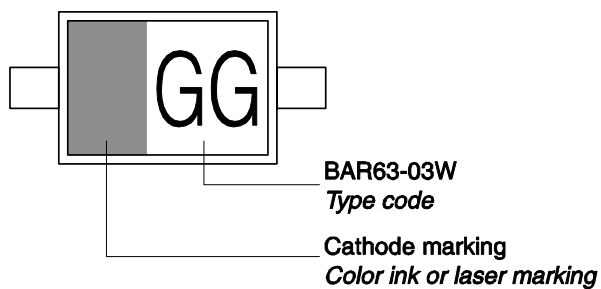
Package Outline



Foot Print

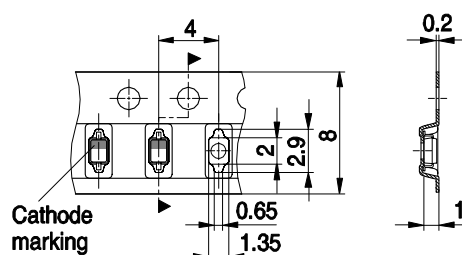


Marking Layout (Example)

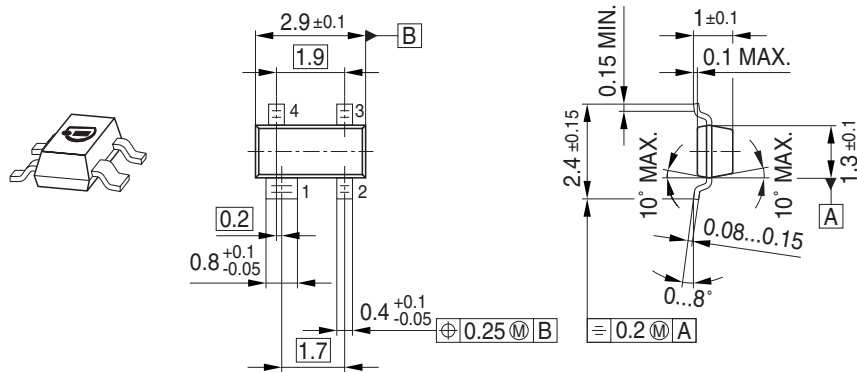


Standard Packing

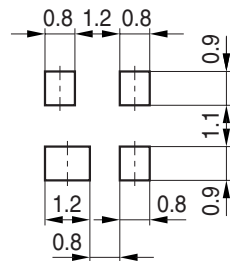
Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel



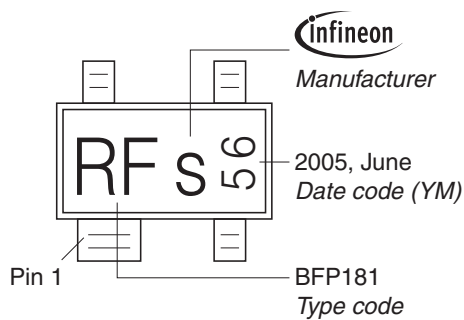
Package Outline



Foot Print

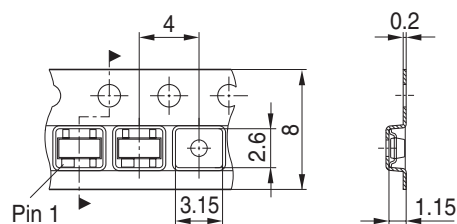


Marking Layout (Example)

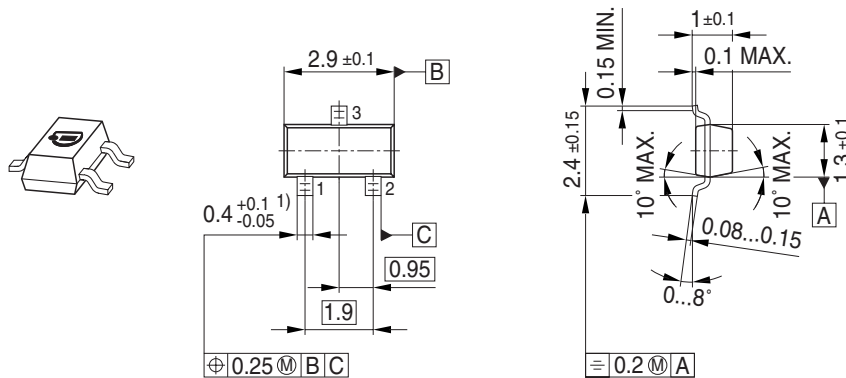


Standard Packing

Reel $\phi 180$ mm = 3.000 Pieces/Reel
 Reel $\phi 330$ 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



Package Outline



Foot Print

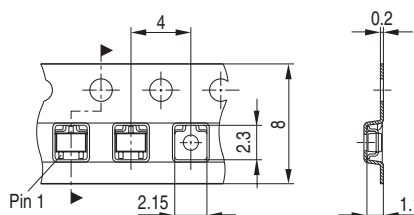


Marking Layout (Example)

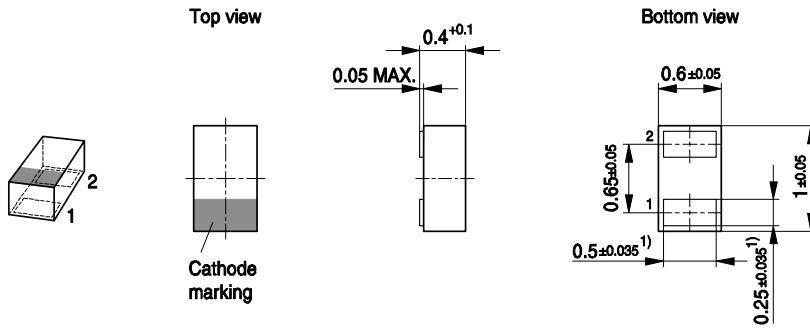


Standard Packing

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



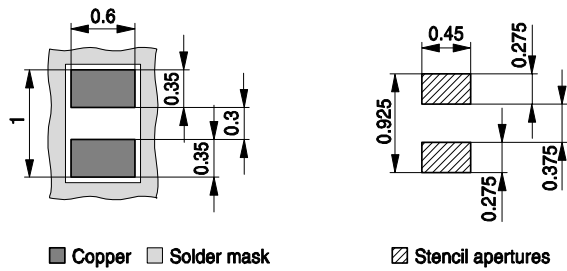
Package Outline



1) Dimension applies to plated terminal

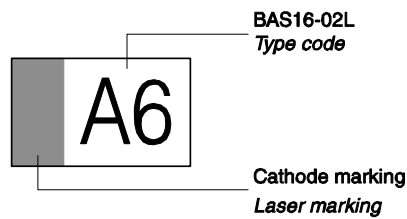
Foot Print

For board assembly information please refer to Infineon website "Packages"



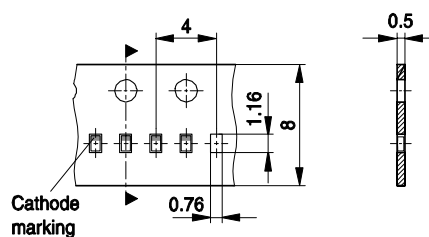
■ Copper □ Solder mask ▨ Stencil apertures

Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel
 Reel ø330 mm = 50.000 Pieces/Reel (optional)



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