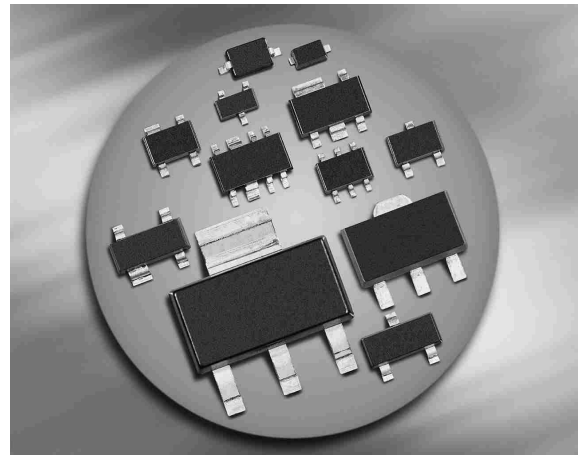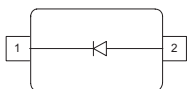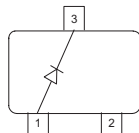## Silicon Schottky Diode

- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing
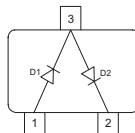- Pb-free (RoHS compliant) package
- Qualified according AEC Q101[1]

AEC Qualified   **RoHS**
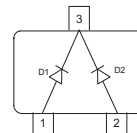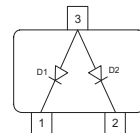
BAS140W
BAS40-02L

BAS40

BAS40-04

BAS40-05
BAS40-05W

BAS40-06
BAS40-06W

BAS40-07
BAS40-07W
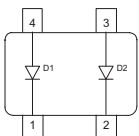
ESD (**E**lectro**s**tatic **d**ischarge) sensitive device, observe handling precaution!

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 °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 $t \leq 10ms$	I_{FSM}	200	
Total power dissipation	P_{tot}		mW
BAS140W, $T_S \leq 113°C$		250	
BAS40, BAS40-07, $T_S \leq 81°C$		250	
BAS40-02L, $T_S \leq 127°C$		250	
BAS40-04, BAS40-06, $T_S \leq 56°C$		250	
BAS40-06W, $T_S \leq 106°C$		250	
BAS40-05, $T_S \leq 31°C$		250	
BAS40-05W, $T_S \leq 98°C$		250	
BAS40-07W, $T_S \leq 118°C$		250	
Junction temperature	T_j	150	°C
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°C, unless otherwise specified

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

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

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Diode capacitance $C_T = f(V_R)$

f = 1MHz
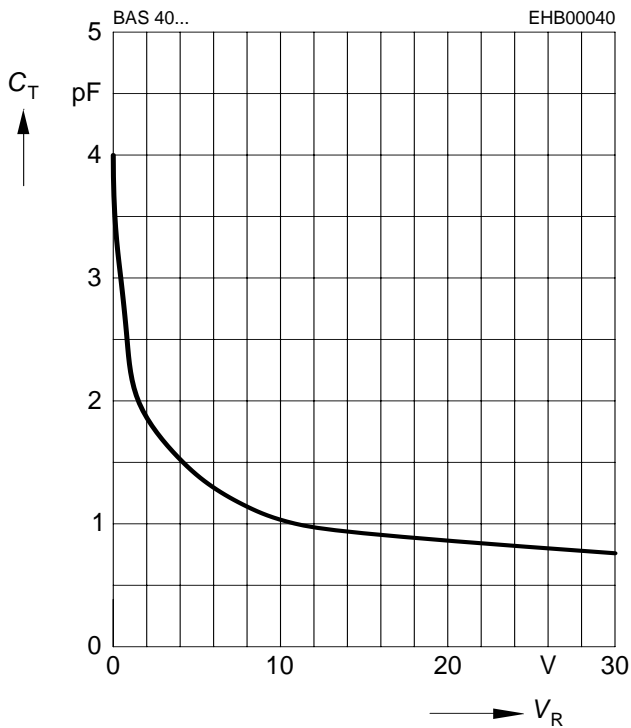
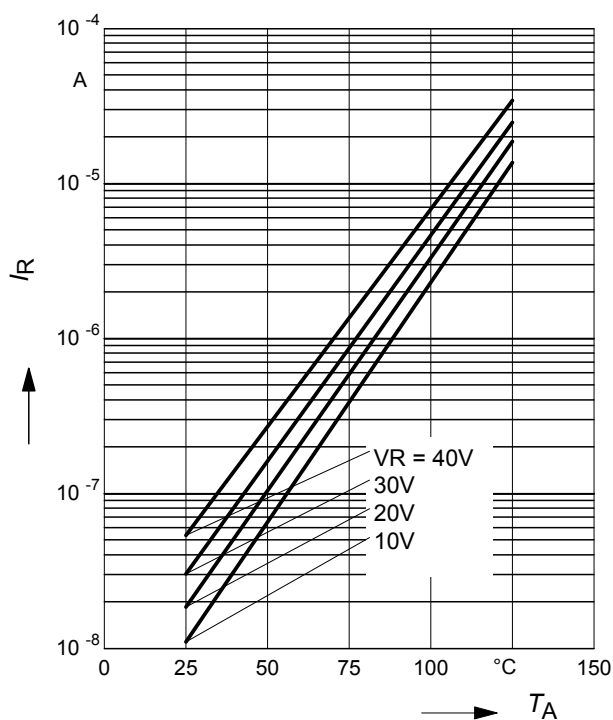**Forward resistance** $r_f = f(I_F)$
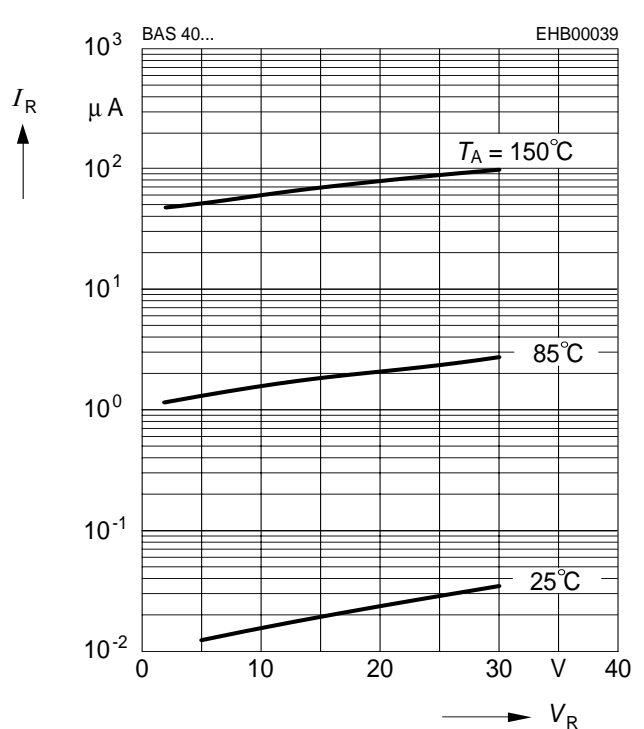
f = 10 kHz
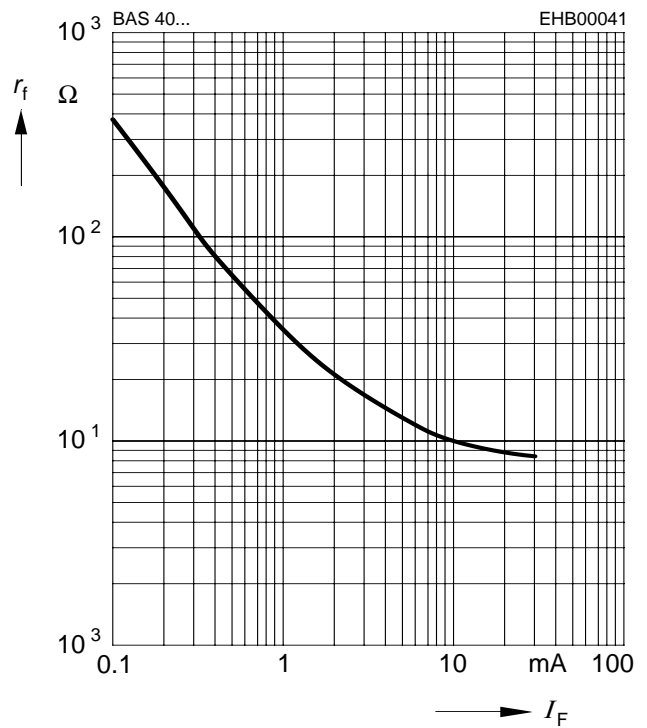
Reverse current $I_R = f(T_A)$
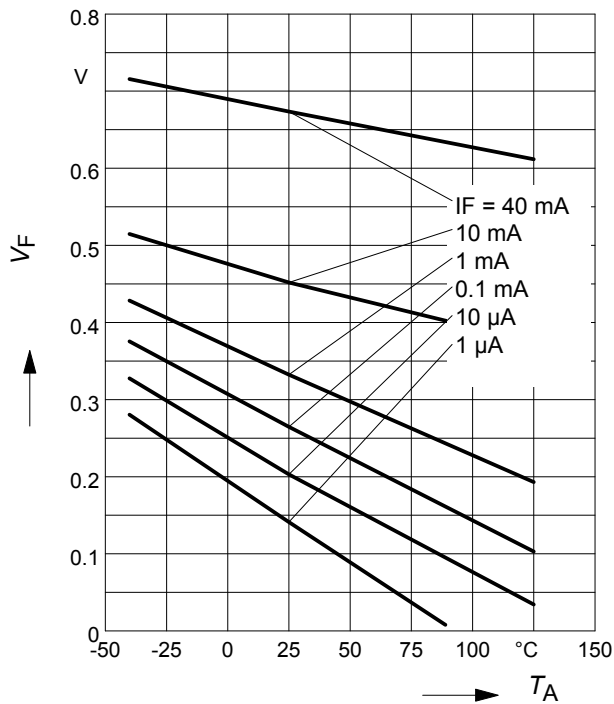
V_R = Parameter

Reverse current $I_R = f(V_R)$
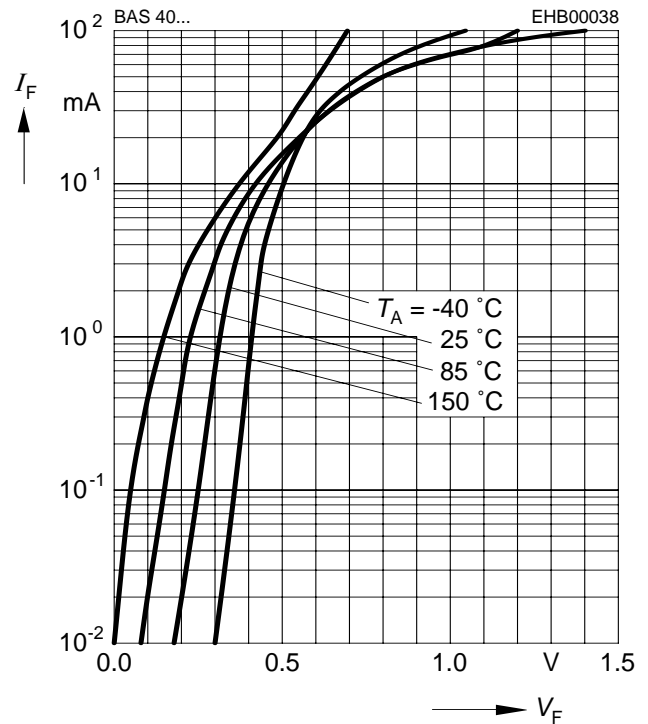
T_A = Parameter

4

Forward Voltage $V_F = f(T_A)$

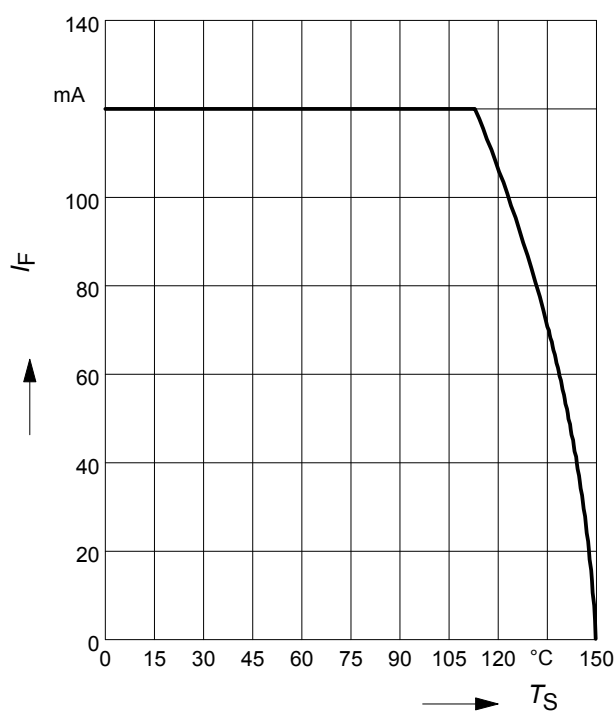I_F = Parameter

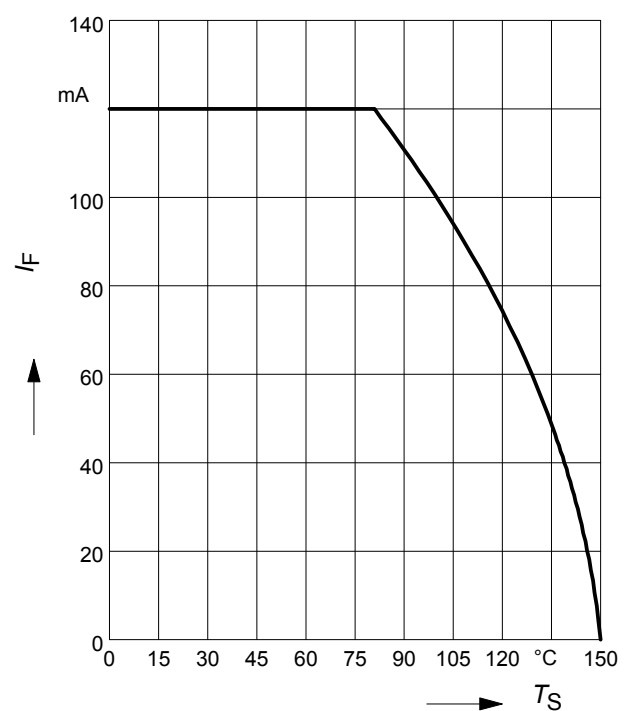**Forward current** $I_F = f(V_F)$

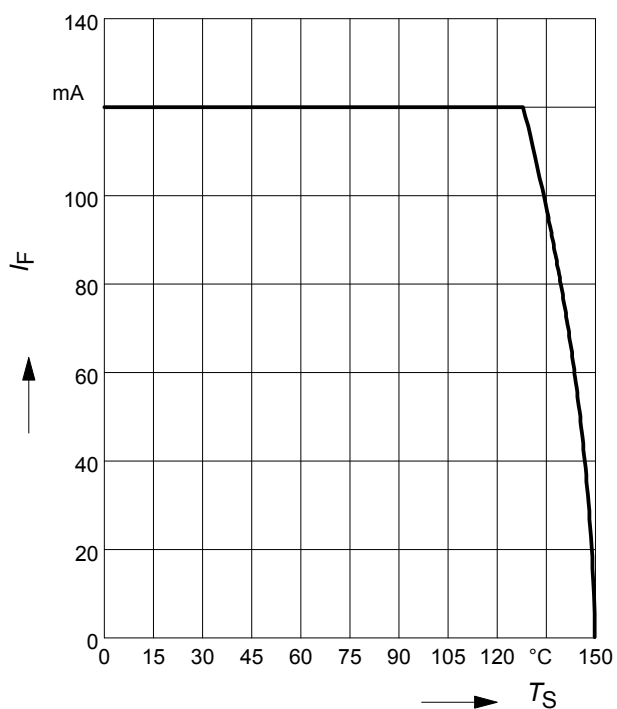T_A = Parameter

Forward current $I_F = f(T_S)$

BAS140W
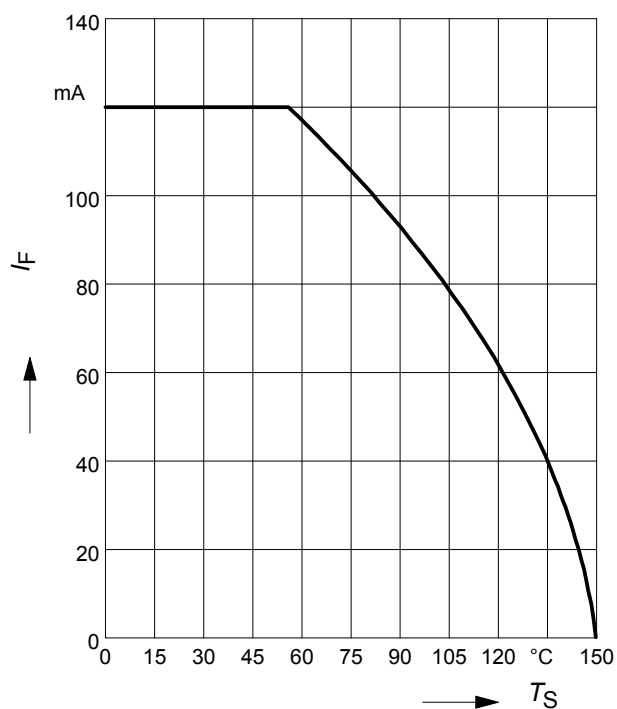

Forward current $I_F = f(T_S)$

BAS40, BAS40-07

5   2013-01-11

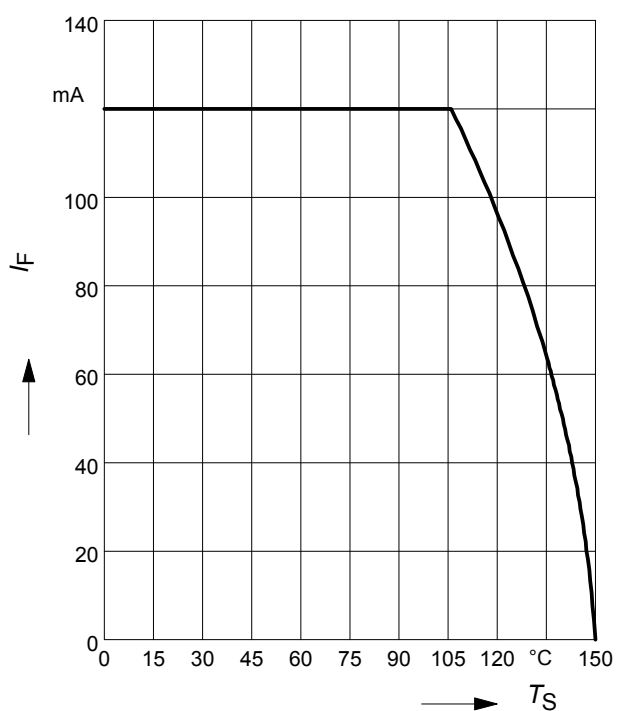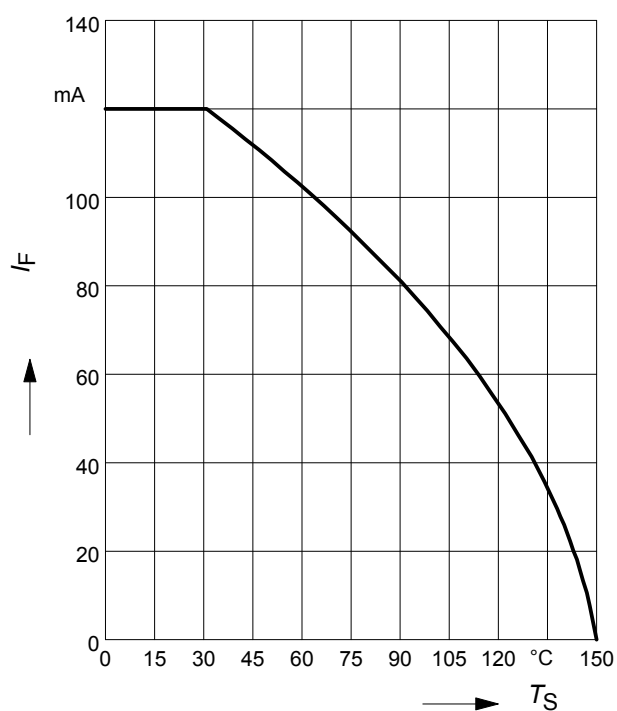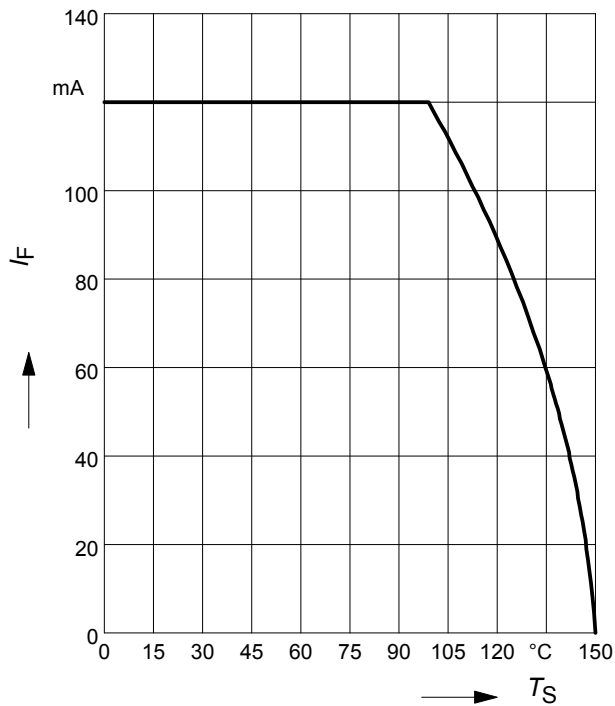**Forward current** $I_F = f(T_S)$

BAS40-02L

Forward current $I_F = f(T_S)$

BAS40-04, BAS40-06
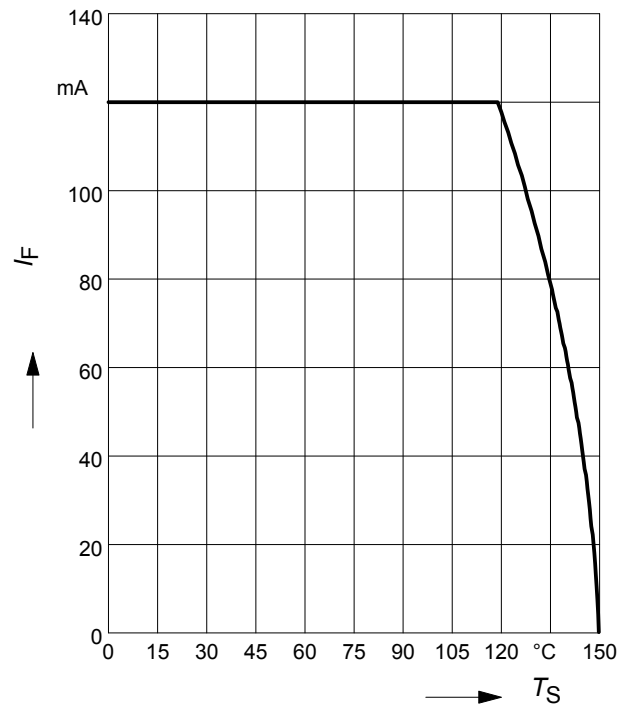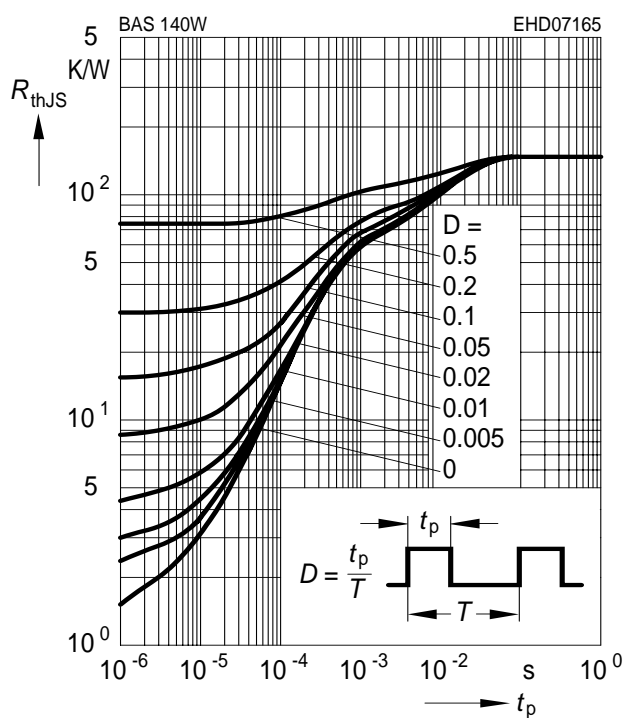
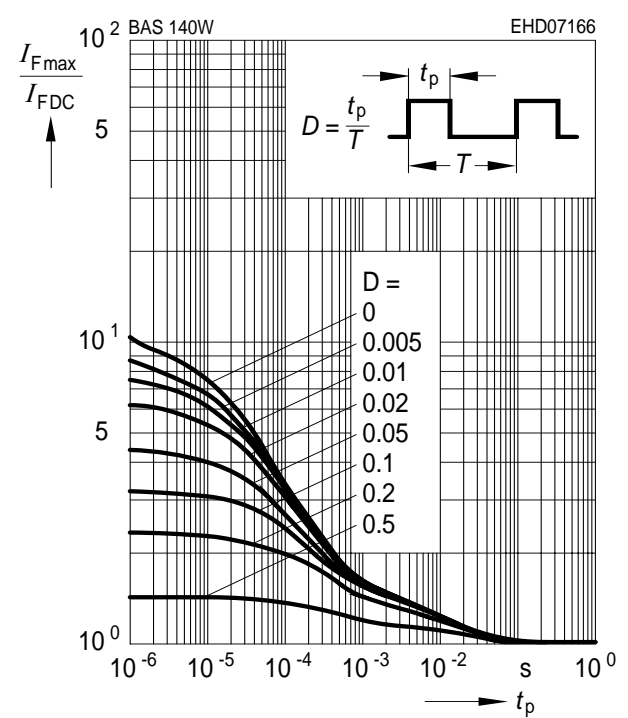**Forward current** $I_F = f(T_S)$

BAS40-06W

Forward current $I_F = f(T_S)$
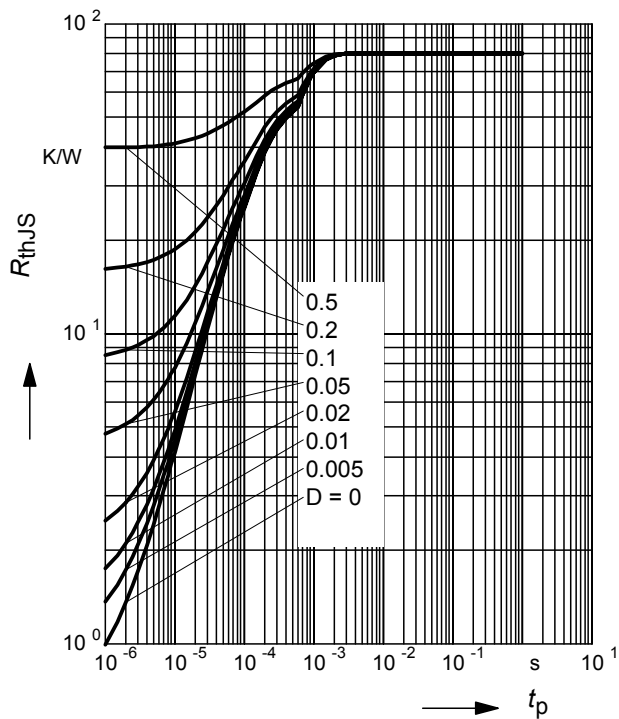
BAS40-05

2013-01-11

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

2013-01-11

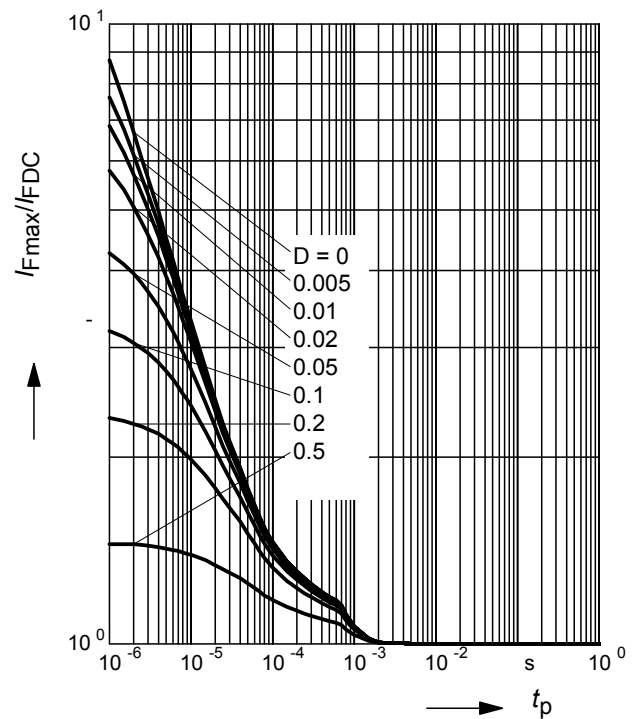**Permissible Puls Load** $R_{thJS} = f(t_p)$

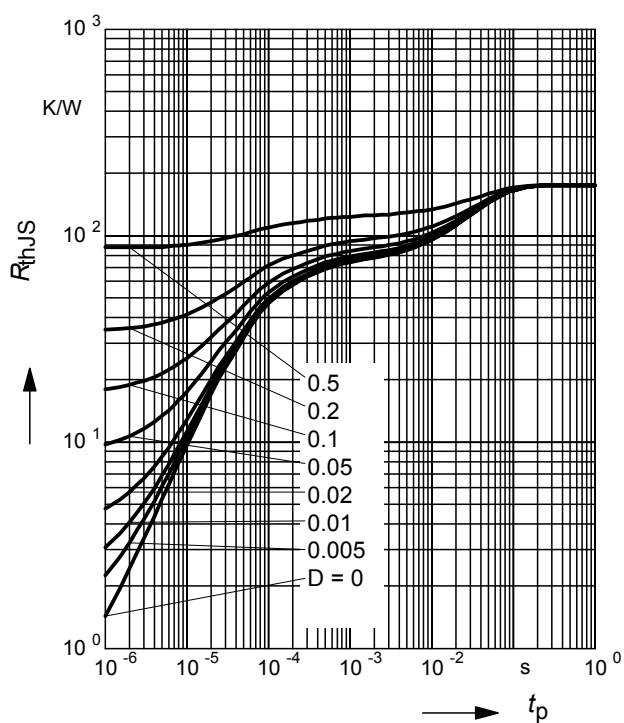BAS40-02L

Permissible Pulse Load

$I_{Fmax}/I_{FDC} = f(t_p)$
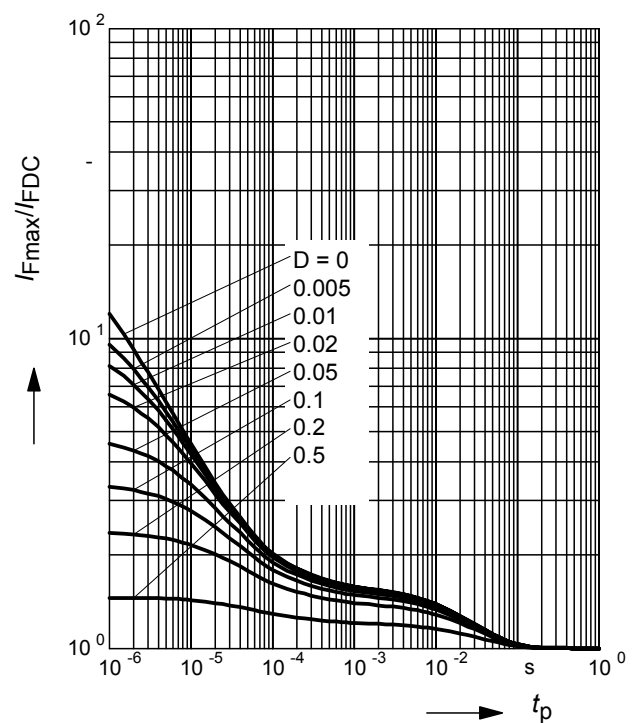
BAS40-02L

Permissible Puls Load $R_{thJS} = f(t_p)$
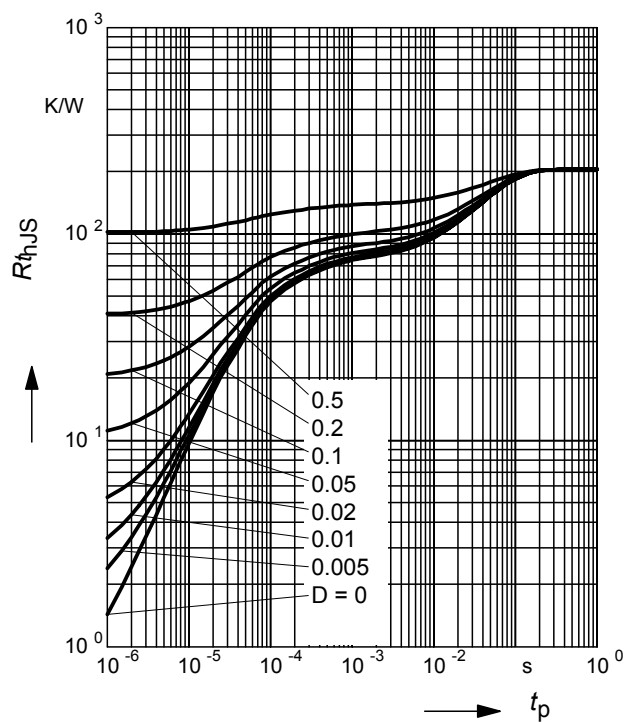
BAS40-06W

Permissible Pulse Load

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

BAS40-06W

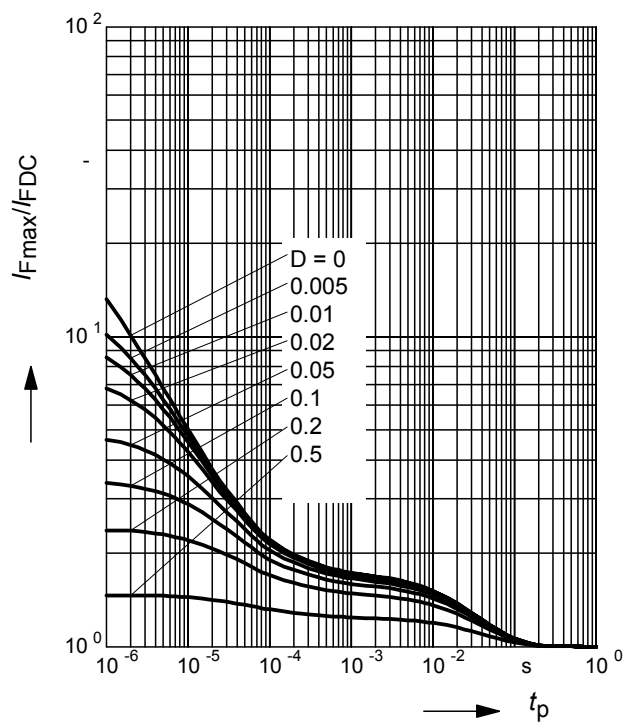2013-01-11

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

BAS40-05W

Permissible Pulse Load

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

BAS40-05W

2013-01-11

Package Outline

Cathode marking

Foot Print

Marking Layout (Example)

GG

BAR63-03W
Type code

Cathode marking
Color ink or laser marking
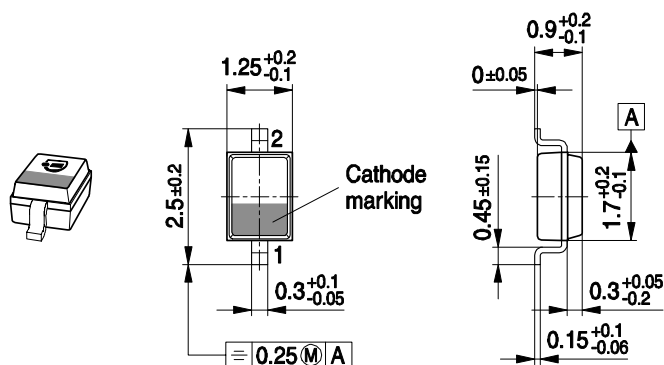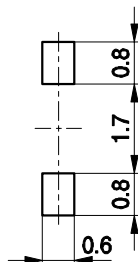
Standard Packing

Reel ⌀180 mm = 3.000 Pieces/Reel
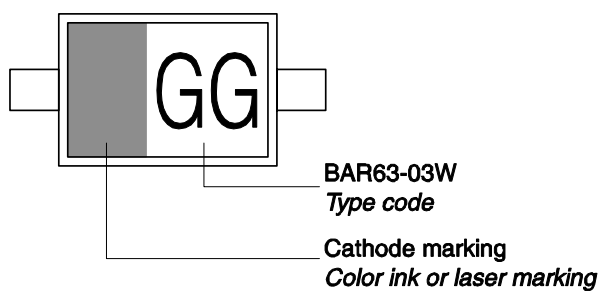Reel ⌀330 mm = 10.000 Pieces/Reel

Cathode marking

2013-01-11

Package Outline

Foot Print

Marking Layout (Example)

Manufacturer

2005, June
Date code (YM)

Pin 1

BFP181
Type code

Standard Packing

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

Pin 1

Package Outline

2.9 ±0.1 B

3

2.4 ±0.15

0.15 MIN.

1 ±0.1

0.1 MAX.

10° MAX.

10° MAX.

0.08...0.15

0...8°

1.3 ±0.1 A

0.4 $^{+0.1}_{-0.05}$ 1)

1

2

C

0.95

1.9

⊕ | 0.25 Ⓜ | B | C

= | 0.2 Ⓜ | A

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

Foot Print
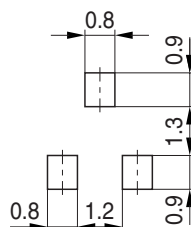
0.8

0.9

1.3

0.8

1.2

0.9

Marking Layout (Example)

Ĩnfineon
Manufacturer

EH S 56

2005, June
Date code (YM)

Pin 1

BCW66
Type code

Standard Packing

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

4

0.9

0.2

2.13

2.65

8

Pin 1

3.15

1.15

2013-01-11

Package Outline

Foot Print

Marking Layout (Example)

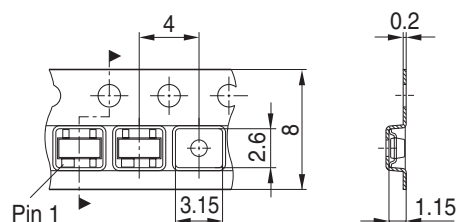Manufacturer

WH s 5 6

2005, June
Date code (YM)

Pin 1

BCR108W
Type code
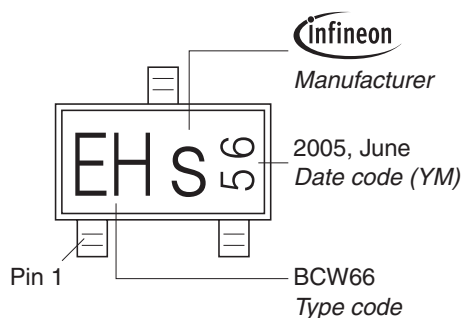
Standard Packing

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

Package Outline

Top view

Bottom view

0.4$^{+0.1}$

0.05 MAX.

0.6±0.05

0.65±0.05

1±0.05

0.5±0.035$^{1)}$

0.25±0.035$^{1)}$

2

1

Cathode
marking
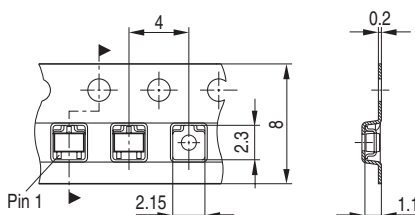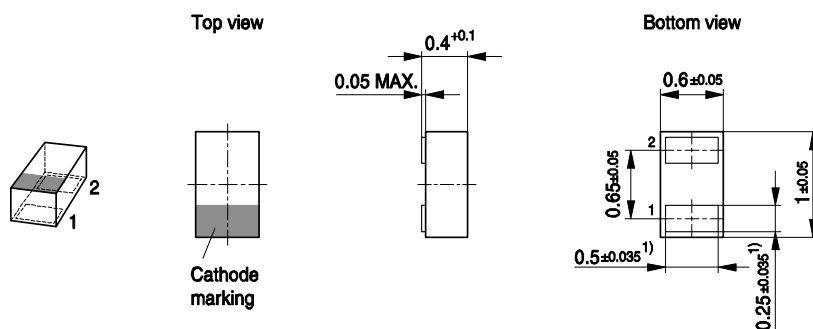
1) Dimension applies to plated terminal

Foot Print

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

0.6

0.35

0.3

0.35

1

0.45

0.275

0.925

0.375

0.275

■ Copper □ Solder mask   ▨ Stencil apertures

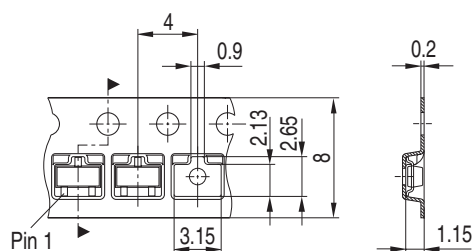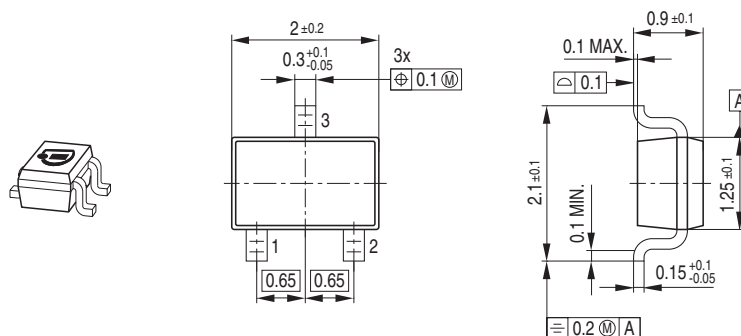## Marking Layout (Example)

BAS16-02L
Type code

A6

Cathode marking
Laser marking
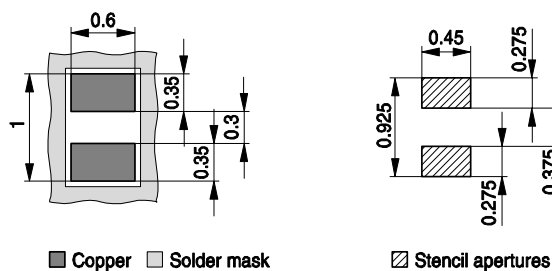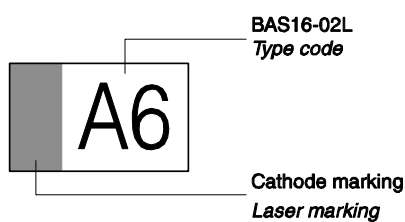
Standard Packing

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

4

0.5

1.16

8

0.76

Cathode
marking
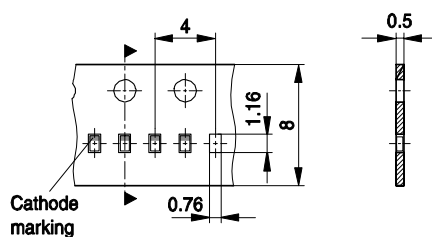
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