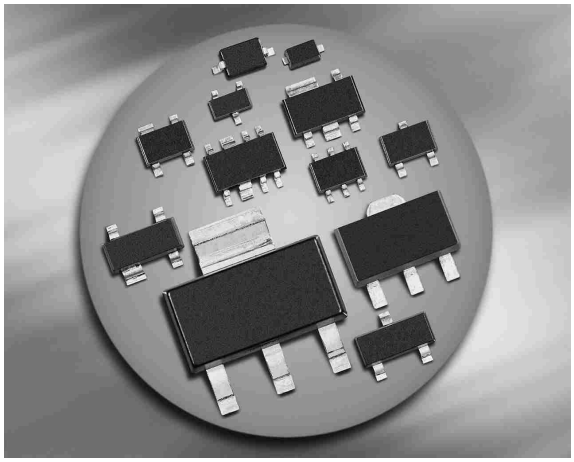
Silicon Switching Diode

- For high-speed switching applications
- Pb-free (RoHS compliant) package [1)]
- Qualified according AEC Q101

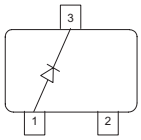


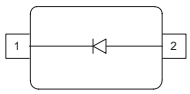
BAS16
BAS16W

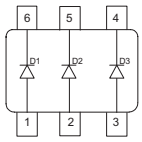
BAS16-02L
BAS16-02V
BAS16-02W
BAS16-03W

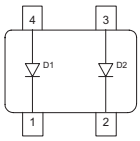
BAS16S
BAS16U

BAS16-07L4









Type	Package	Configuration	Marking
BAS16	SOT23	single	A6s
BAS16-02L*	TSLP-2-1	single, leadless	A6
BAS16-02V	SC79	single	6
BAS16-02W	SCD80	single	A6
BAS16-03W	SOD323	single	white B
BAS16-07L4*	TSLP-4-4	parallel pair, leadless	6A
BAS16S	SOT363	parallel triple	A6s
BAS16U	SC74	parallel triple	A6s
BAS16W	SOT323	single	A6s

* Preliminary Data

[1]Pb-containing package may be available upon special request

Maximum Ratings at T_A = 25 °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		mA
BAS16		250	
BAS16-02L, -07L4		200	
BAS16-02V, -02W		200	
BAS16-03W		250	
BAS16S		200	
BAS16U		200	
BAS16W		250	
Non-repetitive peak surge forward current	I_{FSM}		A
t = 1 µs, BAS16/ S/ U/ W/ -03W		4.5	
t = 1 µs, BAS16-02L/ -02V/ -02W/ -07L4		2.5	
t = 1 s		0.5	
Total power dissipation	P_{tot}		mW
BAS16, $T_S \leq$ 54 °C		370	
BAS16-02L, -07L4, $T_S \leq$ 130 °C		250	
BAS16-02V, -02W, $T_S \leq$ 120 °C		250	
BAS16-03W, $T_S \leq$ 116 °C		250	
BAS16S, $T_S \leq$ 85 °C		250	
BAS16U, $T_S \leq$ 113 °C		250	
BAS16W, $T_S \leq$ 119 °C		250	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ...150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1)]	R_{thJS}		K/W
BAS16, BAS16S		≤ 260	
BAS16-02L, -07L4		≤ 80	
BAS16-02V, -02W		≤ 120	
BAS16-03W		≤ 135	
BAS16U		≤ 150	
BAS16W		≤ 125	

Electrical Characteristics at T_A = 25°C, unless otherwise specified

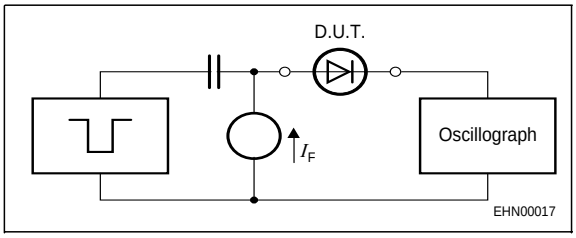
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Breakdown voltage $I_{(BR)}$ = 100 µA	$V_{(BR)}$	85	-	-	V
Reverse current	I_R				µA
V_R = 75 V		-	-	1	
V_R = 25 V, T_A = 150 °C		-	-	30	
V_R = 75 V, T_A = 150 °C		-	-	50	
Forward voltage	V_F				mV
I_F = 1 mA		-	-	715	
I_F = 10 mA		-	-	855	
I_F = 50 mA		-	-	1000	
I_F = 100 mA		-	-	1200	
I_F = 150 mA		-	-	1250	
Forward recovery voltage I_F = 10 mA, t_P = 20 ns	V_{fr}	-	-	1.75	V

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

Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Diode capacitance V_R = 0 V, f = 1 MHz	C_T	-	-	2	pF
Reverse recovery time I_F = 10 mA, I_R = 10 mA, measured at I_R = 1mA , R_L = 100 Ω	t_{rr}	-	-	4	ns

Test circuit for reverse recovery time

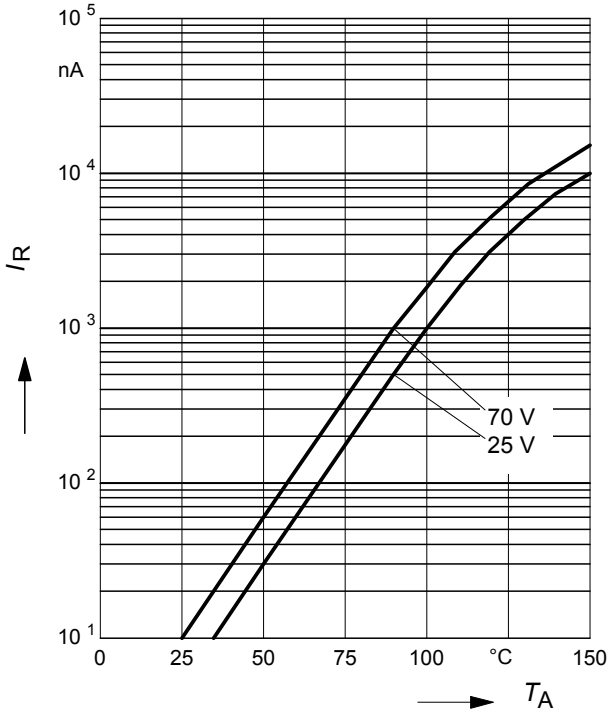


Pulse generator: t_p = 100ns, D = 0.05, t_r = 0.6ns, R_i = 50Ω

Oscillograph: R = 50Ω, t_r = 0.35ns, C = 0.05pF

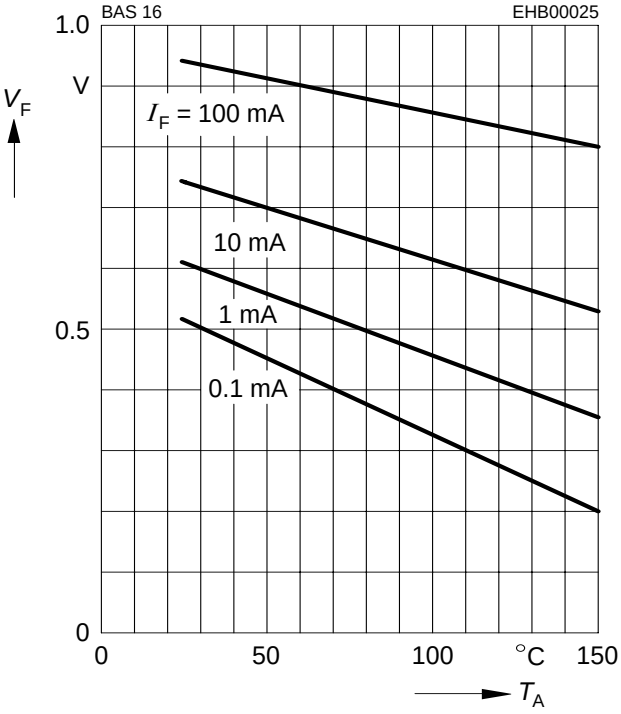
Reverse current $I_R = f(T_A)$

V_R = Parameter



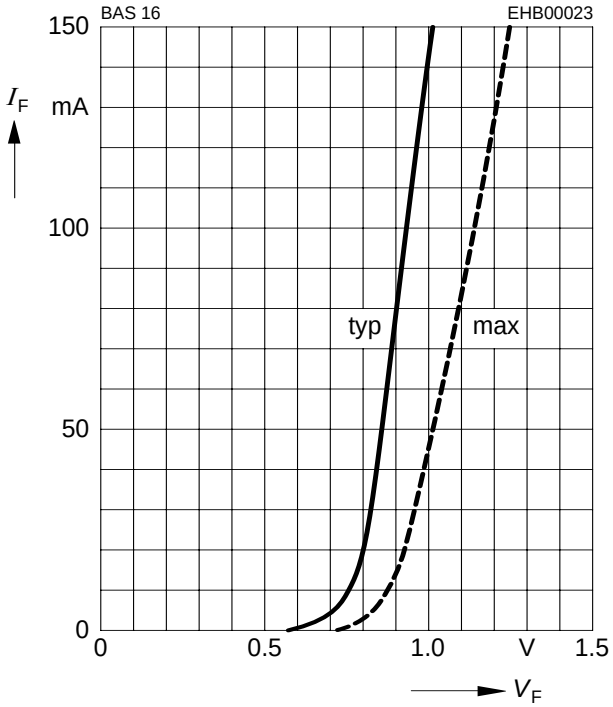
Forward Voltage $V_F = f(T_A)$

I_F = Parameter



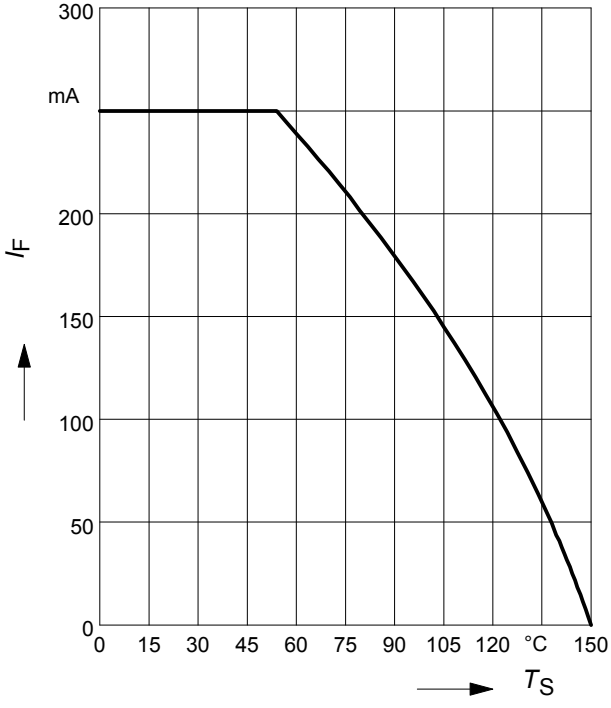
Forward current $I_F = f(V_F)$

T_A = 25°C



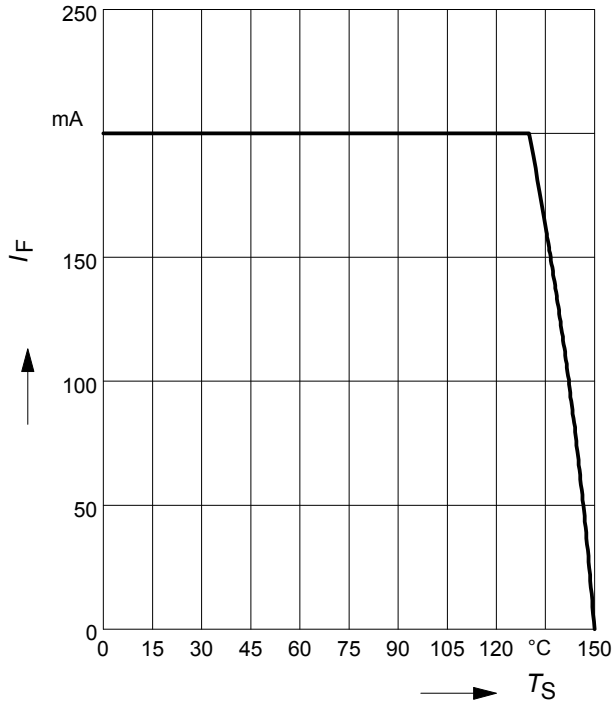
Forward current $I_F = f(T_S)$

BAS16



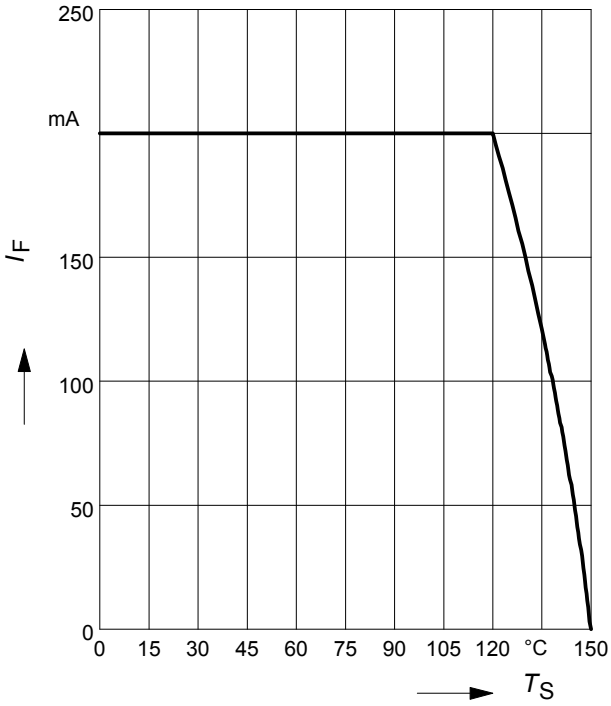
Forward current $I_F = f(T_S)$

BAS16-02L, -07L4



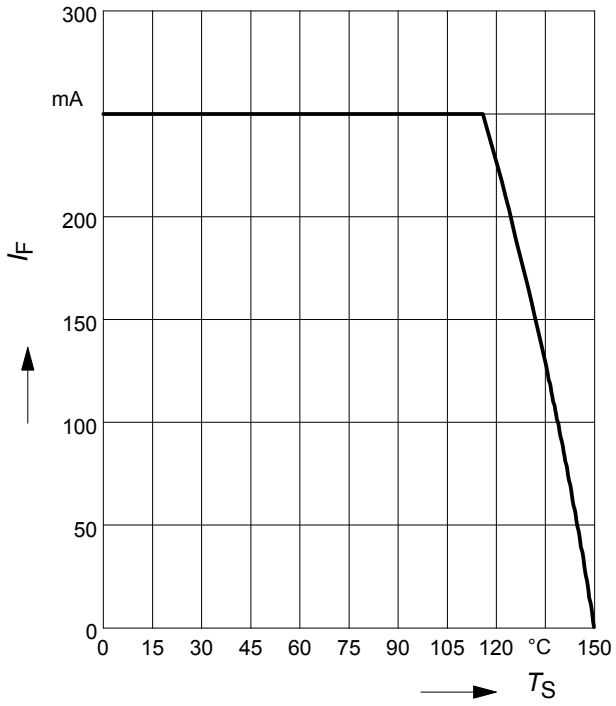
Forward current $I_F = f(T_S)$

BAS16-02V, -02W



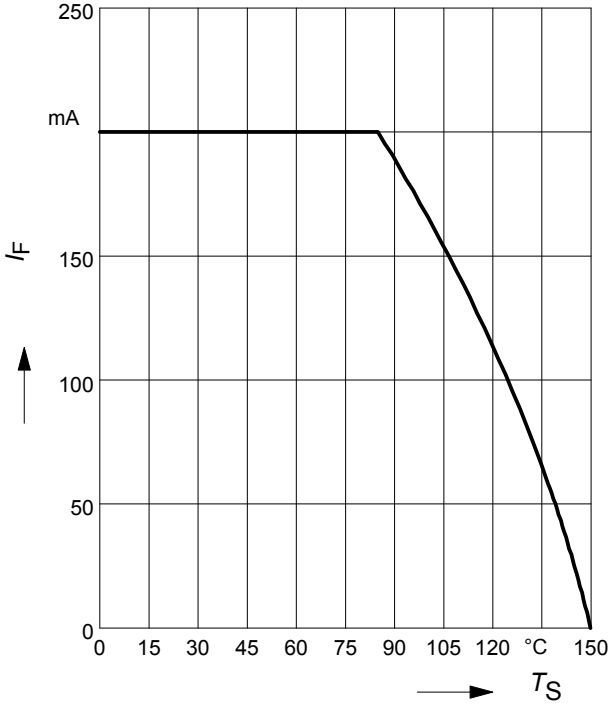
Forward current $I_F = f(T_S)$

BAS16-03W



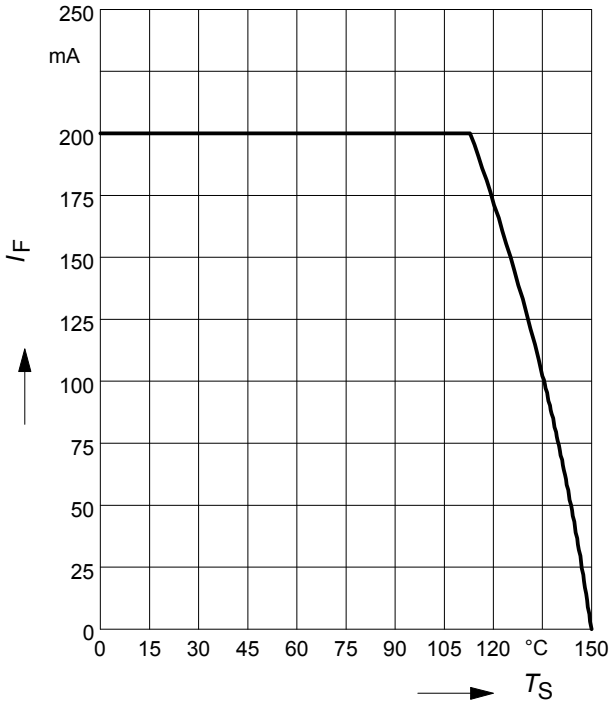
Forward current $I_F = f(T_S)$

BAS16S



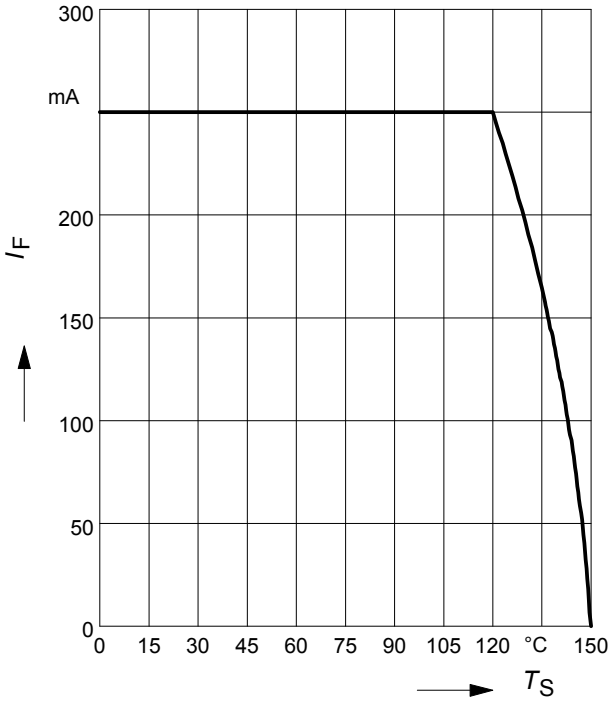
Forward current $I_F = f(T_S)$

BAS16U



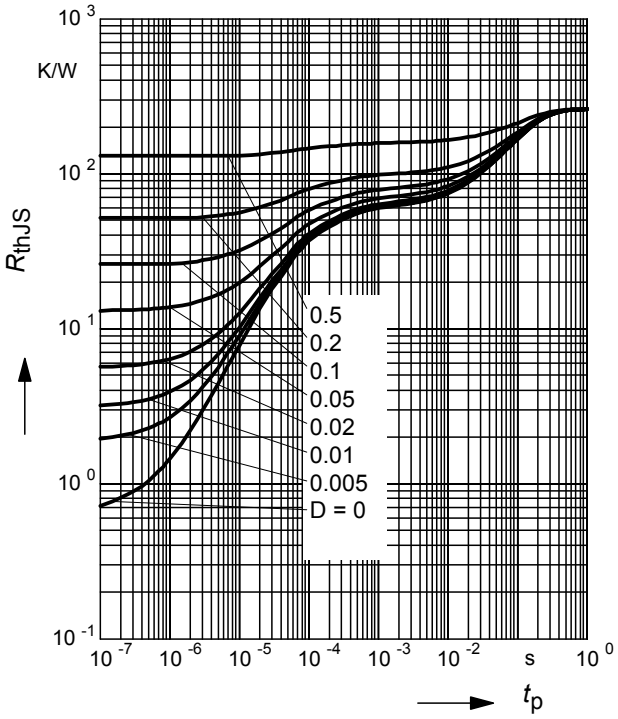
Forward current $I_F = f(T_S)$

BAS16W



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

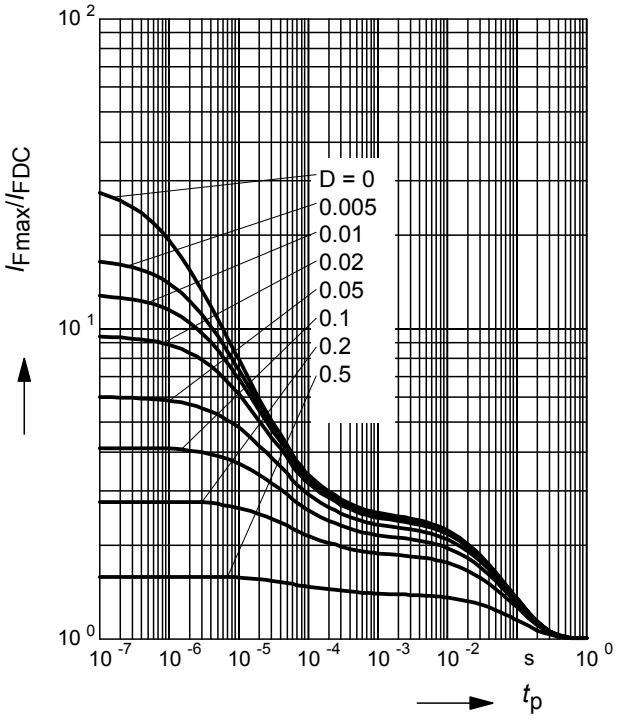
BAS16



Permissible Pulse Load

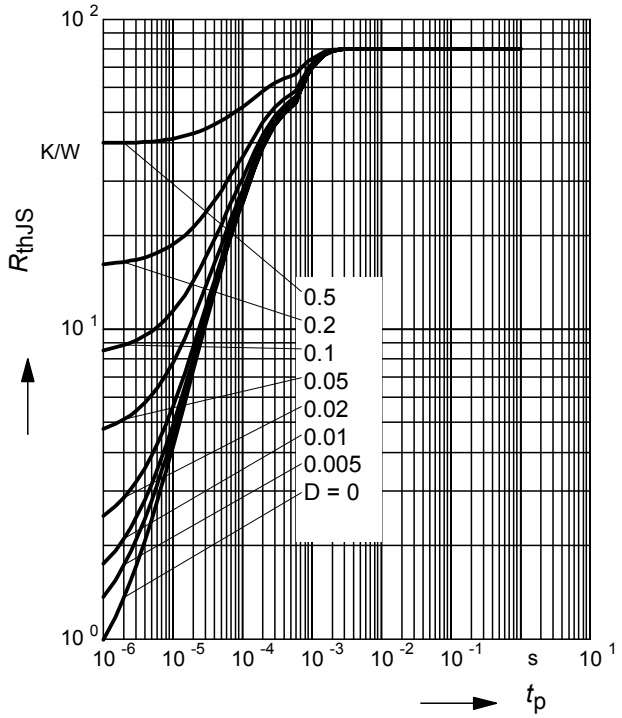
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS16



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

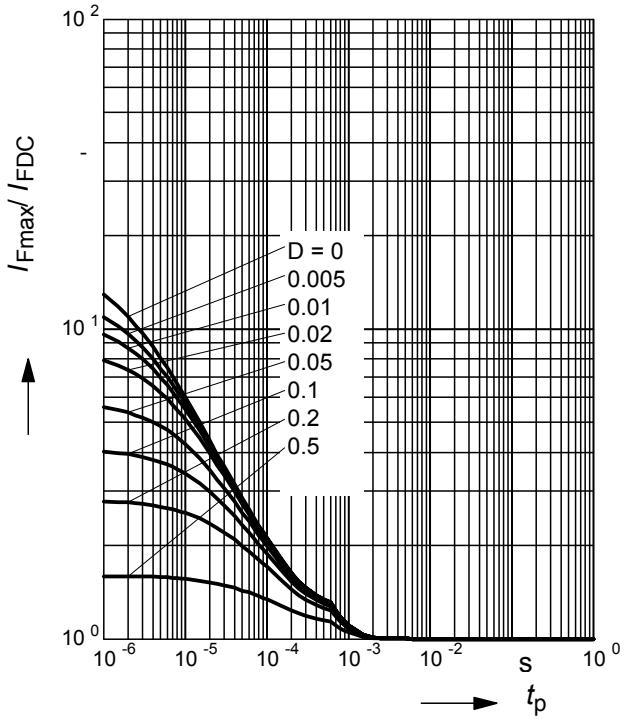
BAS16-02L, -07L4



Permissible Pulse Load

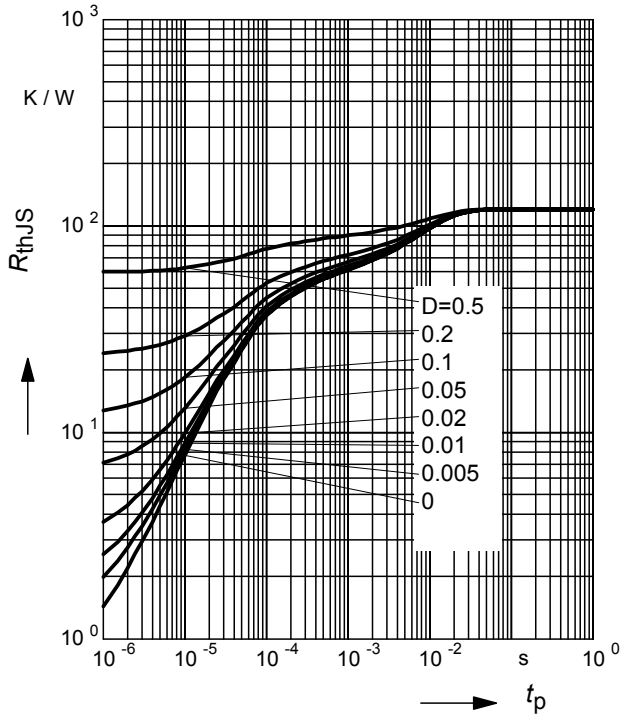
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS16-02L, -07L4



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

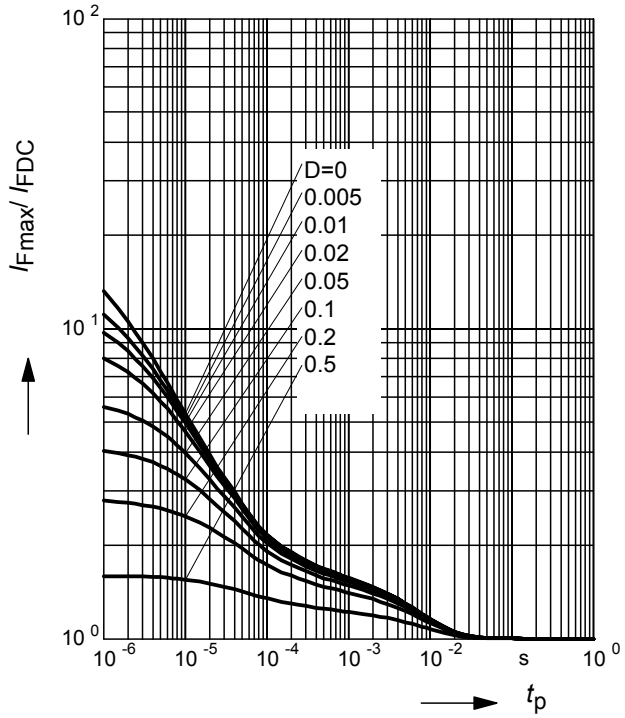
BAS16-02V, -02W



Permissible Pulse Load

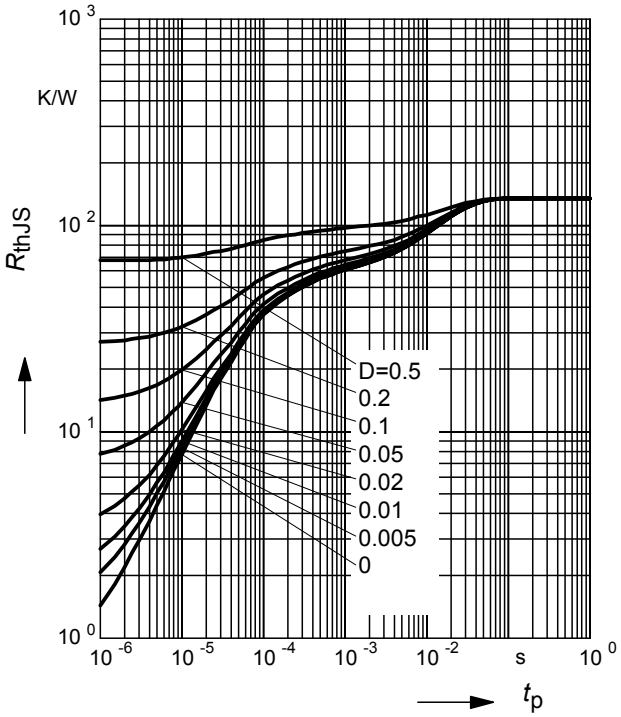
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS16-02V, -02W



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

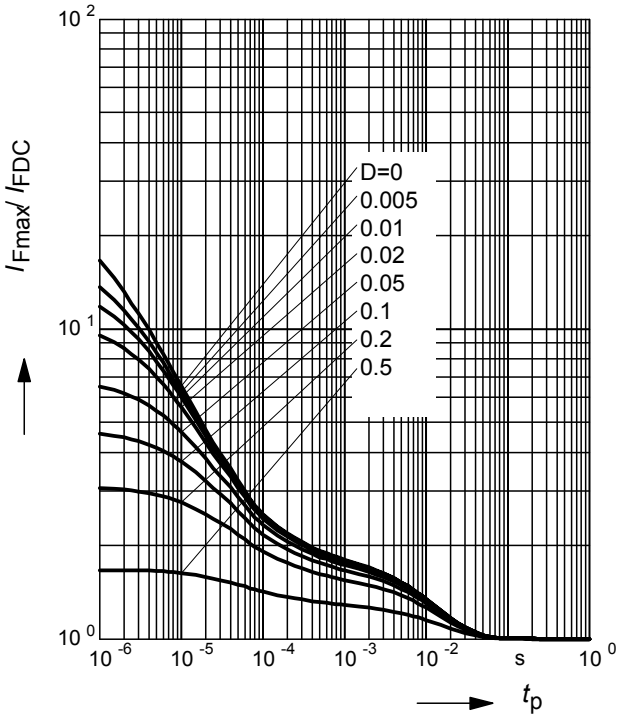
BAS16-03W



Permissible Pulse Load

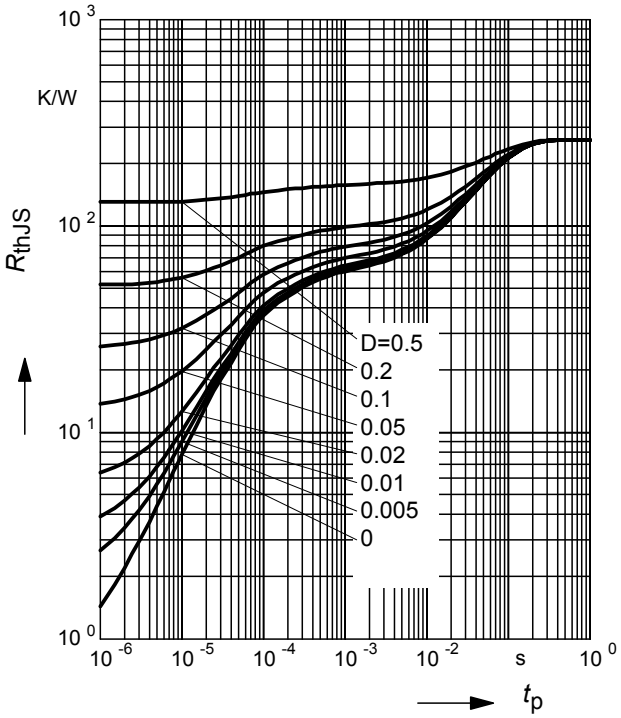
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS16-03W



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

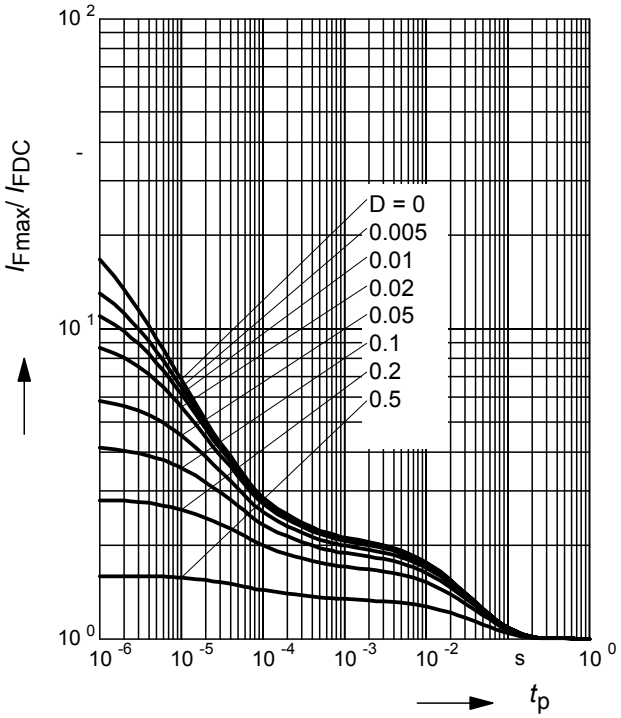
BAS16S



Permissible Pulse Load

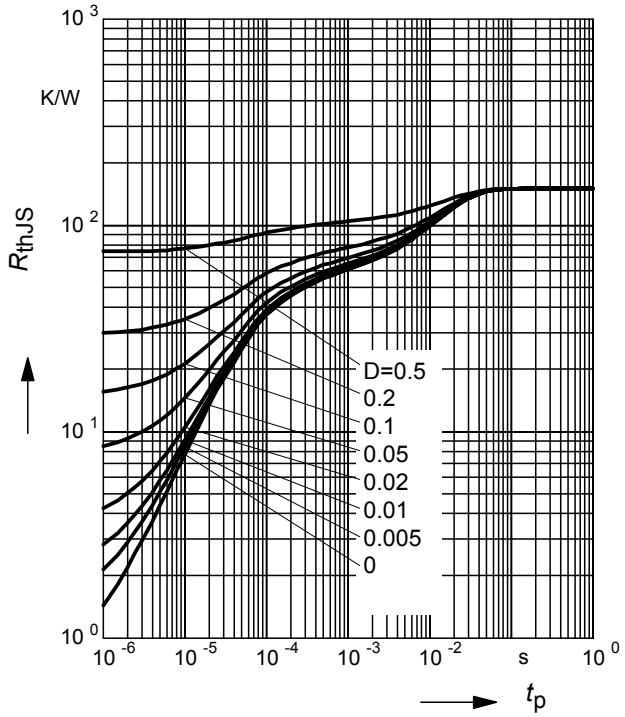
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS16S



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

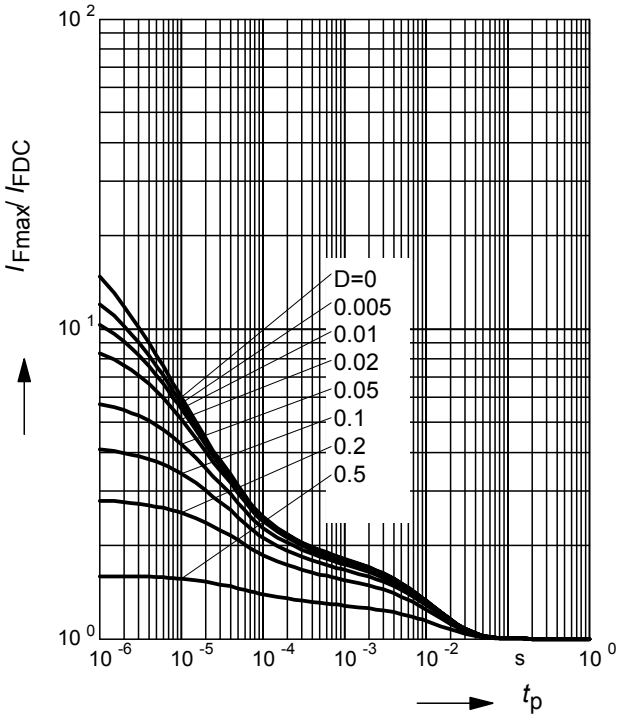
BAS16U



Permissible Pulse Load

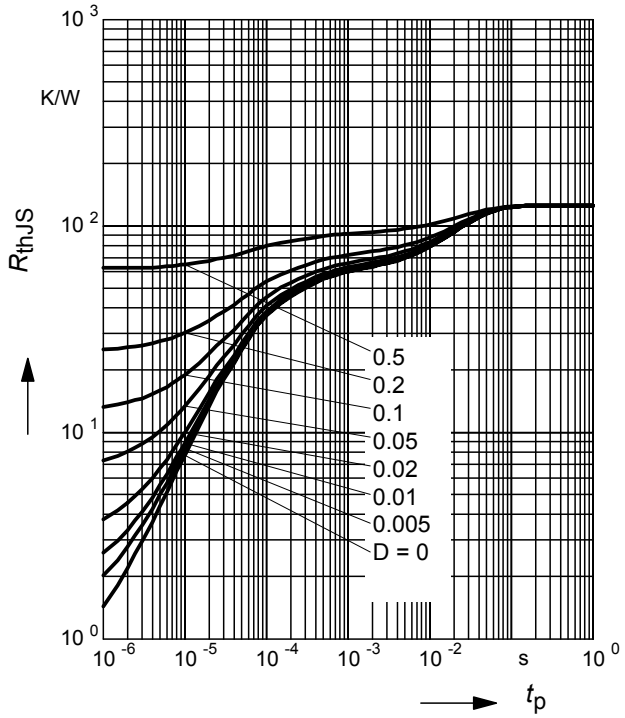
$I_{Fmax}/ I_{FDC} = f(t_p)$

BAS16U



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

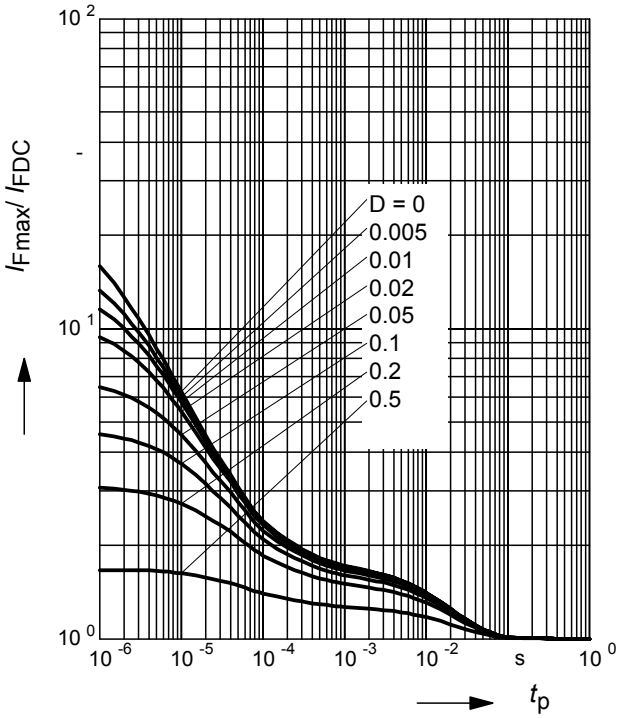
BAS16W



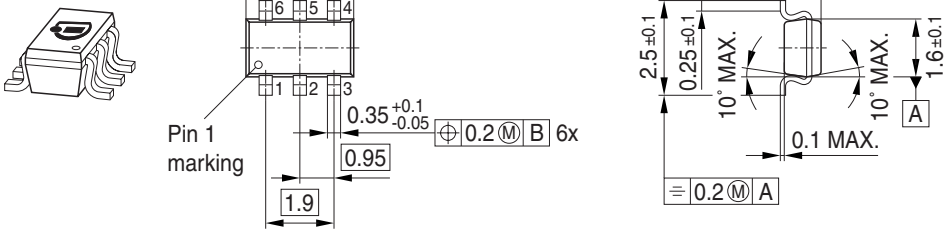
Permissible Pulse Load

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

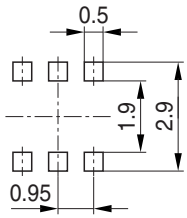
BAS16W



Package Outline

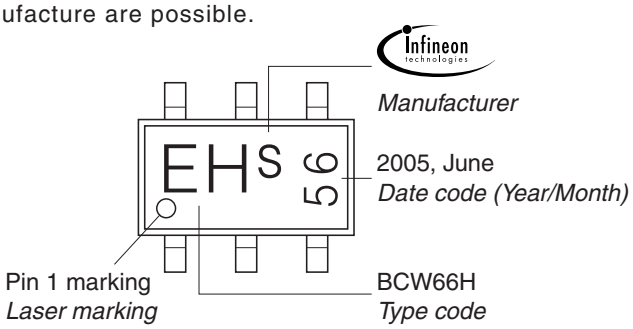


Foot Print



Marking Layout (Example)

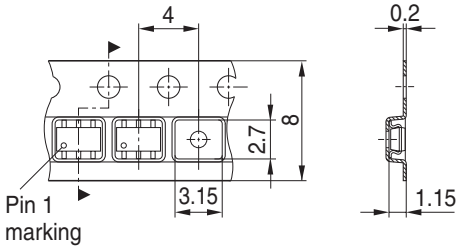
Small variations in positioning of
Date code, Type code and Manufacture are possible.



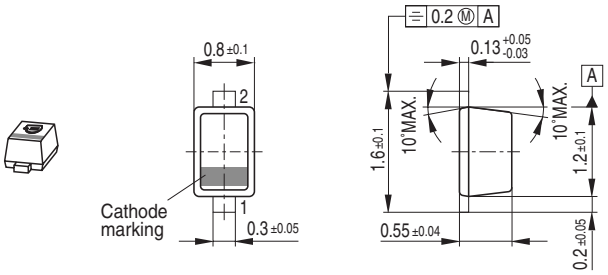
Standard Packing

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

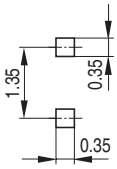
For symmetric types no defined Pin 1 orientation in reel.



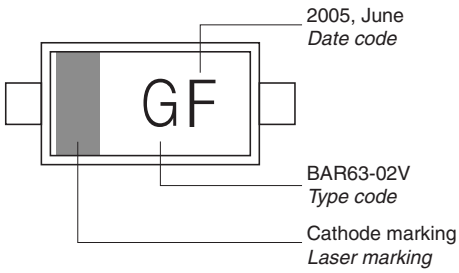
Package Outline



Foot Print

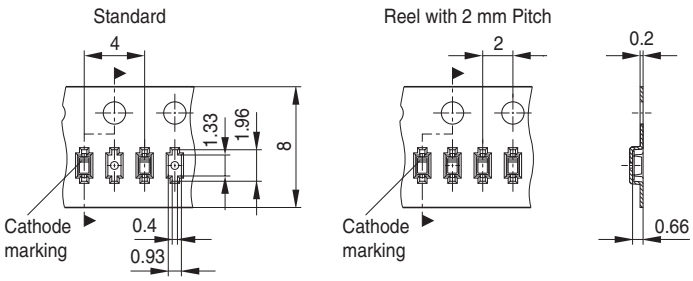


Marking Layout (Example)

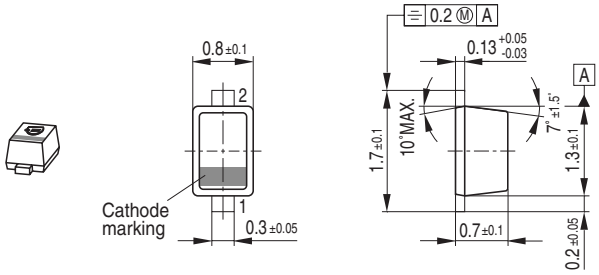


Standard Packing

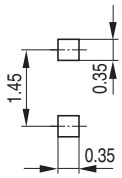
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)
Reel ø330 mm = 10.000 Pieces/Reel



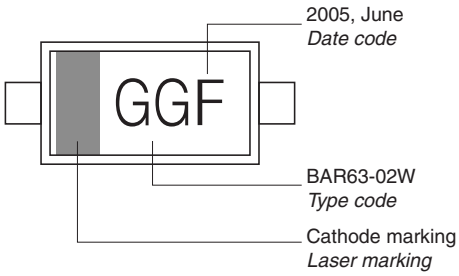
Package Outline



Foot Print

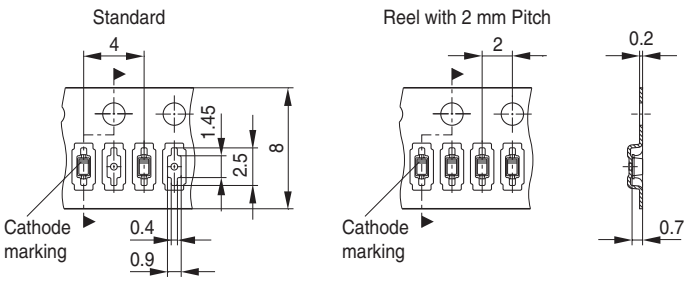


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)
Reel ø330 mm = 10.000 Pieces/Reel

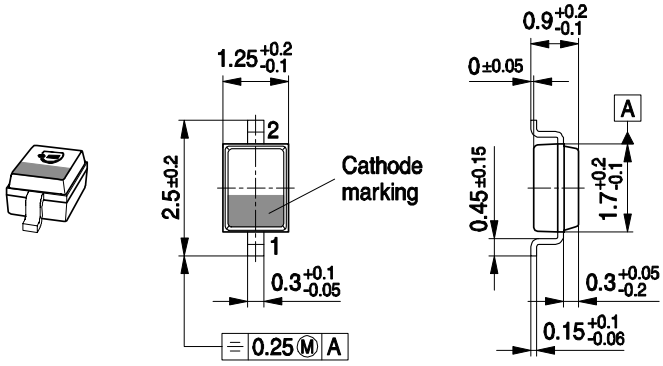


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75[1]) CES-Code

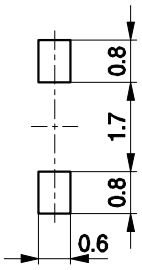
Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y	j	y	J	Y
10	k	z	K	Z	k	z	K	Z	k	z	K	Z
11	l	2	L	4	l	2	L	4	l	2	L	4
12	n	3	N	5	n	3	N	5	n	3	N	5

1) New Marking Layout for SC75, implemented at October 2005.

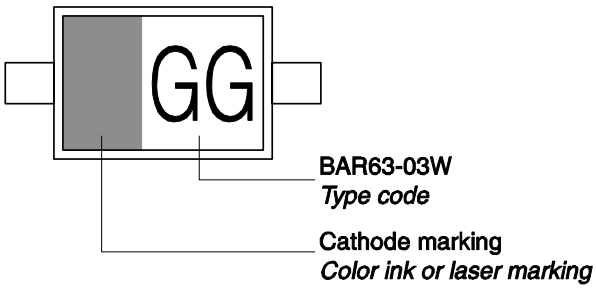
Package Outline



Foot Print

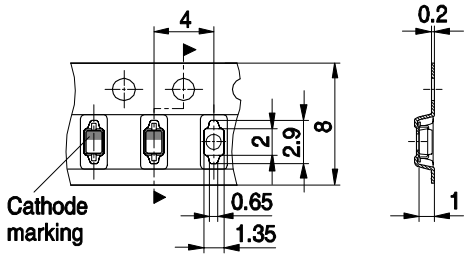


Marking Layout (Example)

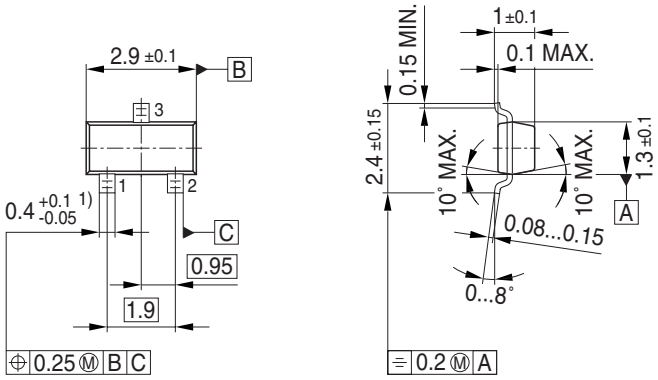


Standard Packing

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

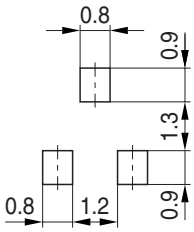


Package Outline

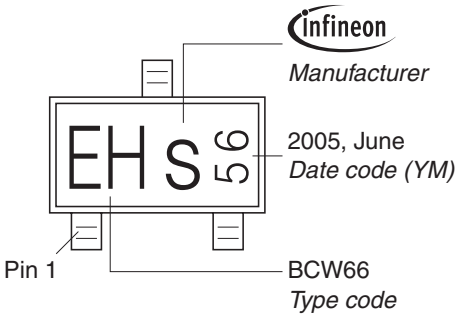


1) Lead width can be 0.6 max. in dambar area

Foot Print

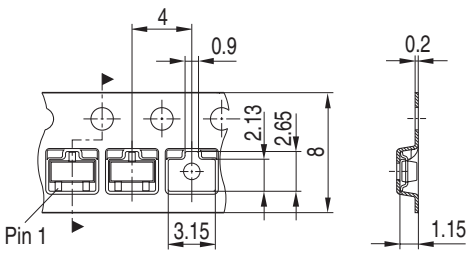


Marking Layout (Example)

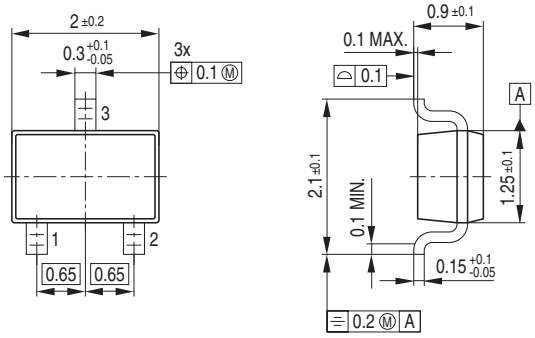


Standard Packing

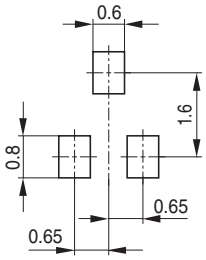
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



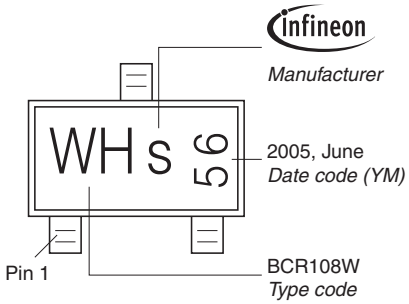
Package Outline



Foot Print

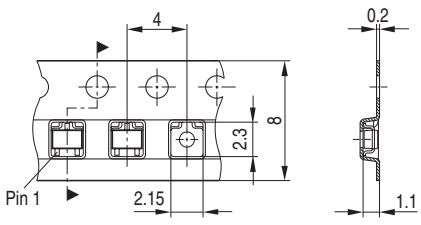


Marking Layout (Example)

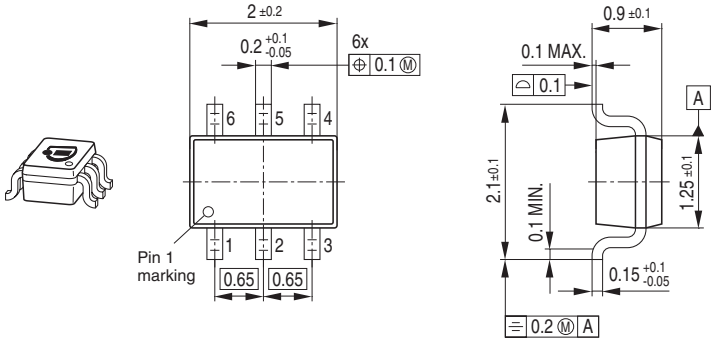


Standard Packing

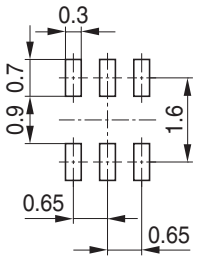
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



Package Outline

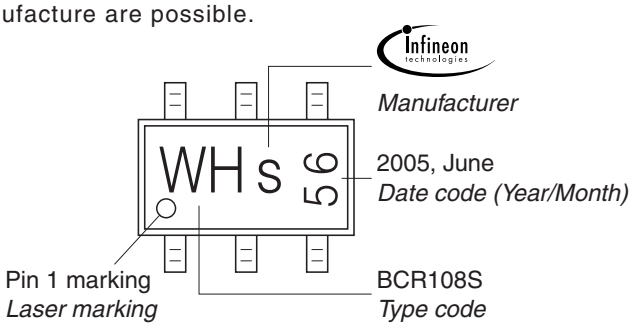


Foot Print



Marking Layout (Example)

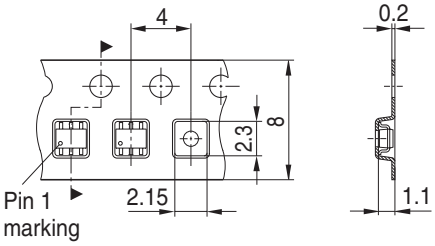
Small variations in positioning of
Date code, Type code and Manufacture are possible.



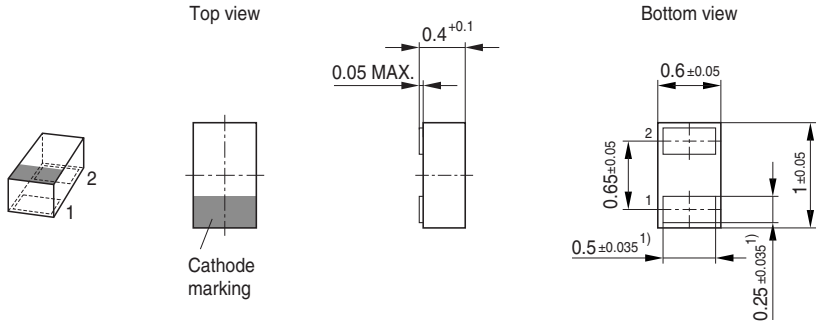
Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



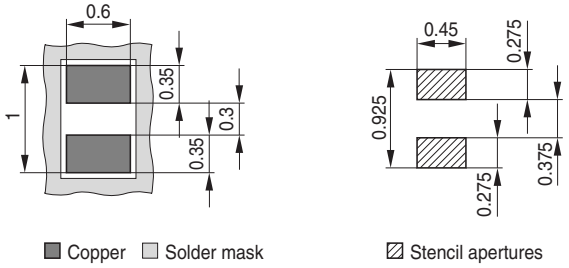
Package Outline



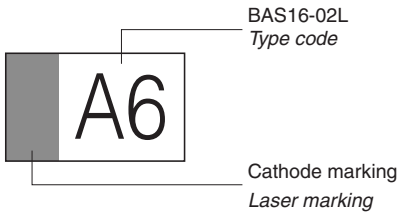
1) Dimension applies to plated terminal

Foot Print

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

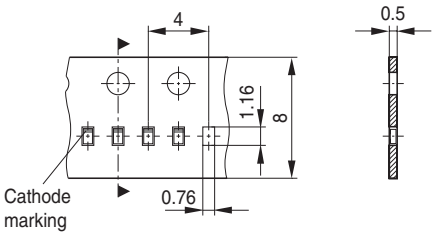


Marking Layout (Example)



Standard Packing

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



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