

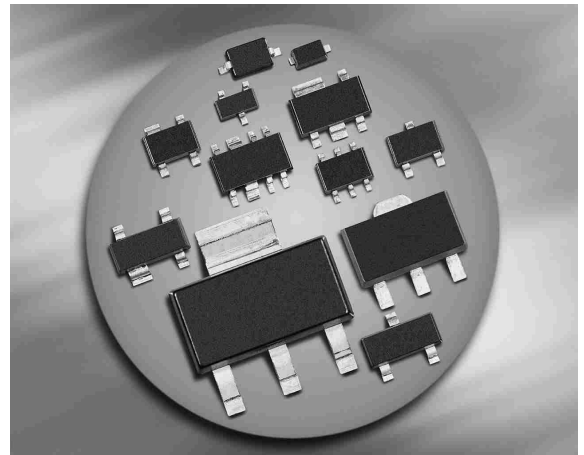


**THE DATASHEET OF  
BAS16W E6433**



**Silicon Schottky Diode**

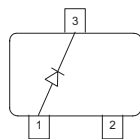
- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing
- BAS70-04S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101<sup>1)</sup>



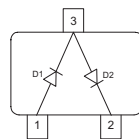
**BAS170W**  
**BAS70-02L**  
**BAS70-02W**  
**BAS70-02V**



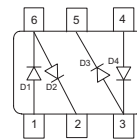
**BAS70**



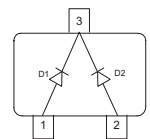
**BAS70-04**  
**BAS70-04W**



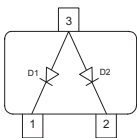
**BAS70-04S**



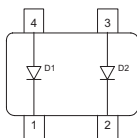
**BAS70-05**  
**BAS70-05W**



**BAS70-06**  
**BAS70-06W**



**BAS70-07**  
**BAS70-07W**



<sup>1</sup>BAS70-02L is not qualified according AEC Q101

Type	Package	Configuration	$L_S$ (nH)	Marking
BAS170W	SOD323	single	1.8	white 7
BAS70	SOT23	single	1.8	73s
BAS70-02L	TSLP-2-1	single, leadless	0.4	F
BAS70-02V	SC79	single	0.6	c
BAS70-02W*	SCD80	single	0.6	73
BAS70-04	SOT23	series	1.8	74s
BAS70-04S	SOT363	dual series	1.6	74s
BAS70-04W	SOT323	series	1.4	74s
BAS70-05	SOT23	common cathode	1.8	75s
BAS70-05W	SOT323	common cathode	1.4	75s
BAS70-06	SOT23	common anode	1.8	76s
BAS70-06W	SOT323	common anode	1.4	76s
BAS70-07	SOT143	parallel pair	2	77s
BAS70-07W	SOT343	parallel pair	1.8	77s

\* Not for new design

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	70	V
Forward current	$I_F$	70	mA
Non-repetitive peak surge forward current $t \leq 10\text{ms}$	$I_{FSM}$	100	
Total power dissipation	$P_{tot}$		mW
BAS70, BAS70-07, $T_S \leq 72\text{ °C}$		250	
BAS70-02L, $T_S \leq 117\text{ °C}$		250	
BAS70-02W, -02V, $T_S \leq 107\text{ °C}$		250	
BAS70-04, BAS70-06, $T_S \leq 48\text{ °C}$		250	
BAS70-04S/W/-06W, BAS170W, $T_S \leq 97\text{ °C}$		250	
BAS70-05, $T_S \leq 22\text{ °C}$		250	
BAS70-05W, $T_S \leq 90\text{ °C}$		250	
BAS70-07W, $T_S \leq 114\text{ °C}$		250	
Junction temperature	$T_J$	150	°C
Operating temperature range	$T_{op}$	-55 ... 125	
Storage temperature	$T_{Stg}$	-55 ... 150	

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup>	$R_{thJS}$		K/W
BAS70, BAS70-07		≤ 310	
BAS70-02L		≤ 130	
BAS70-02W, -02V		≤ 170	
BAS70-04, BAS70-06		≤ 410	
BAS70-04S/W, BAS70-06W		≤ 210	
BAS70-05		≤ 510	
BAS70-05W		≤ 240	
BAS70-07W		≤ 145	
BAS170W		≤ 190	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**DC Characteristics**

Breakdown voltage $I_{(BR)} = 10\ \mu\text{A}$	$V_{(BR)}$	70	-	-	V
Reverse current $V_R = 50\ \text{V}$	$I_R$	-	-	0.1	$\mu\text{A}$
Forward voltage $I_F = 1\ \text{mA}$ $I_F = 10\ \text{mA}$ $I_F = 15\ \text{mA}$	$V_F$	300 600 720	375 705 880	410 750 1000	mV
Forward voltage matching <sup>2)</sup> $I_F = 10\ \text{mA}$	$\Delta V_F$	-	-	20	

<sup>1</sup>For calculation of  $R_{thJA}$  please refer to Application Note AN077 (Thermal Resistance Calculation)

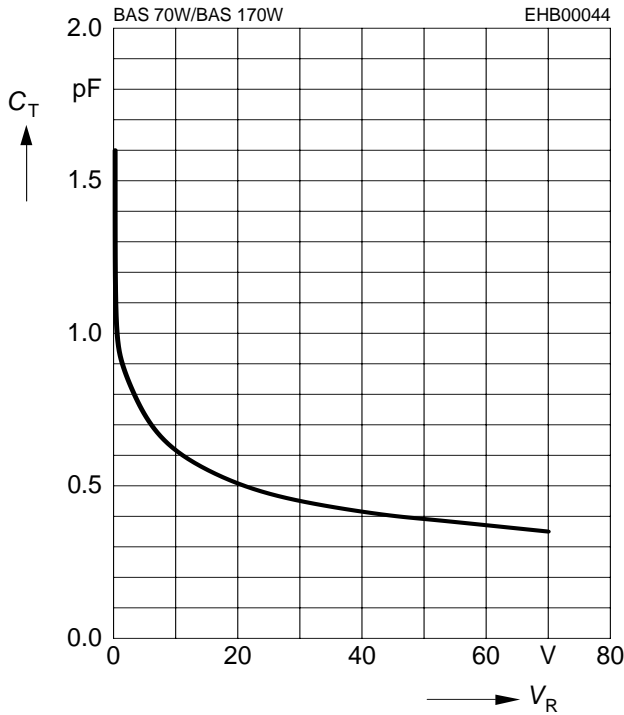
<sup>2</sup> $\Delta V_F$  is the difference between lowest and highest  $V_F$  in a multiple diode component.

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>AC Characteristics</b>					
Diode capacitance $V_R = 0$ , $f = 1\text{ MHz}$	$C_T$	-	1.5	2	pF
Forward resistance $I_F = 10\text{ mA}$ , $f = 10\text{ kHz}$	$r_f$	-	34	-	$\Omega$
Charge carrier life time $I_F = 25\text{ mA}$	$\tau_{rr}$	-	-	100	ps

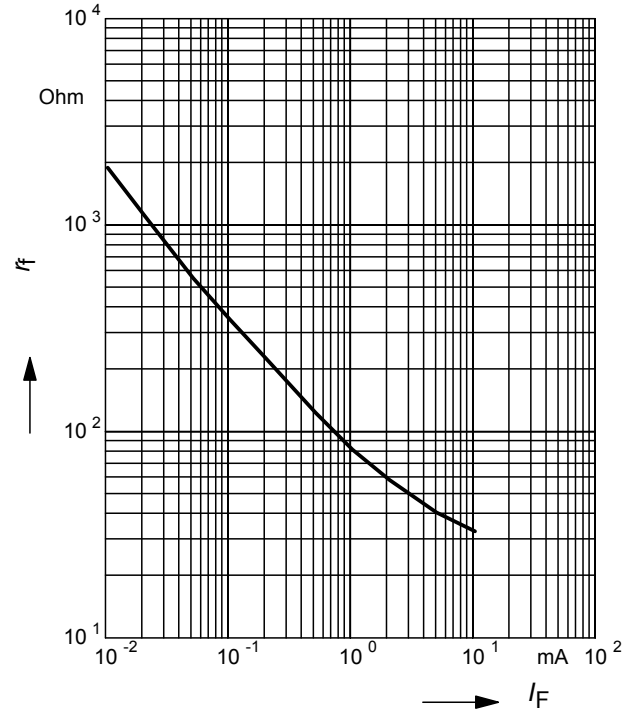
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$



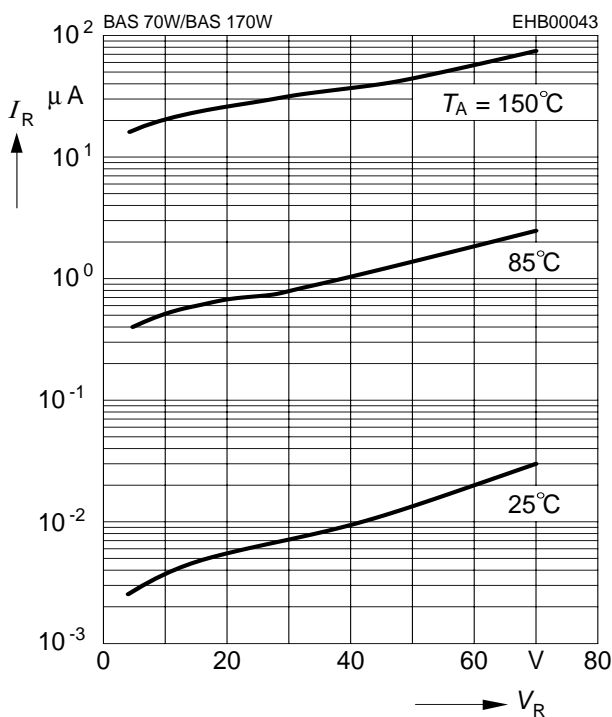
**Forward resistance  $r_f = f(I_F)$**

$f = 10\text{kHz}$



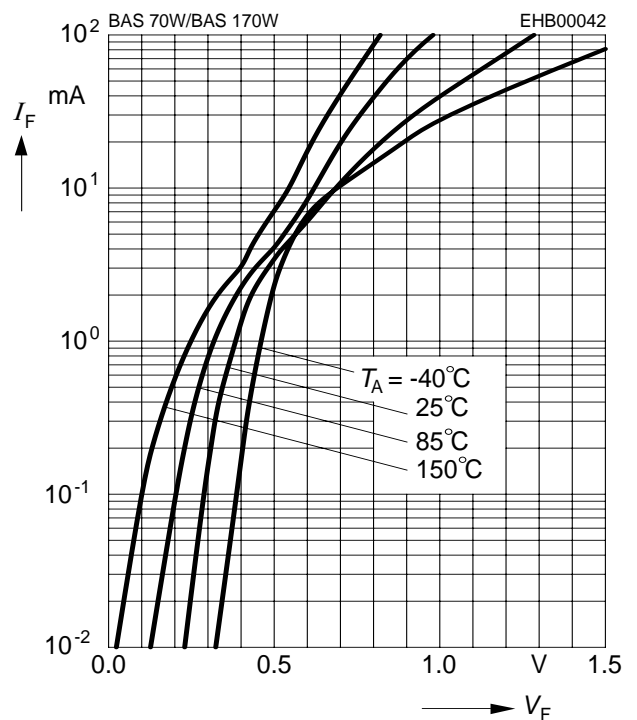
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



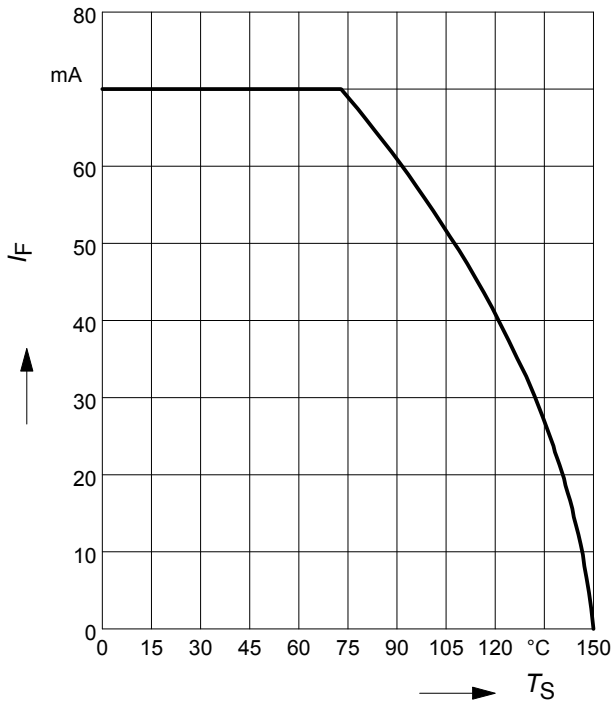
**Forward current  $I_F = f(V_F)$**

$T_A = \text{Parameter}$



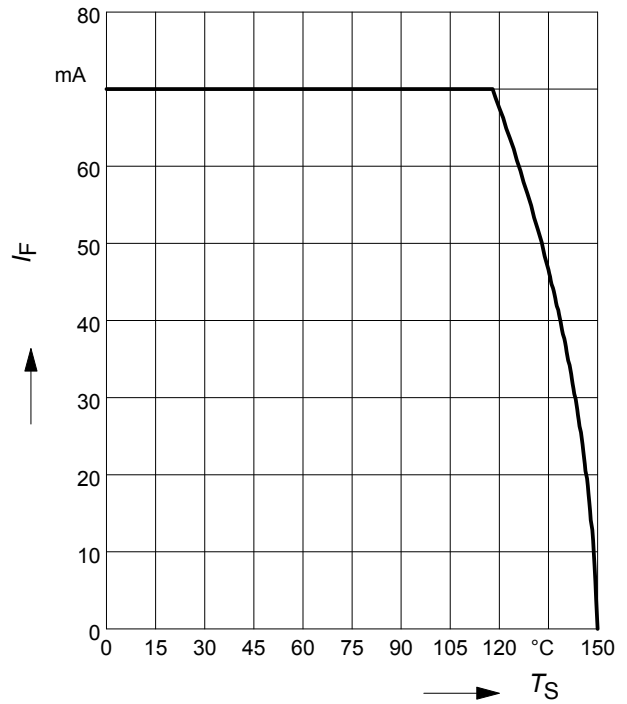
**Forward current  $I_F = f(T_S)$**

BAS70, BAS70-07



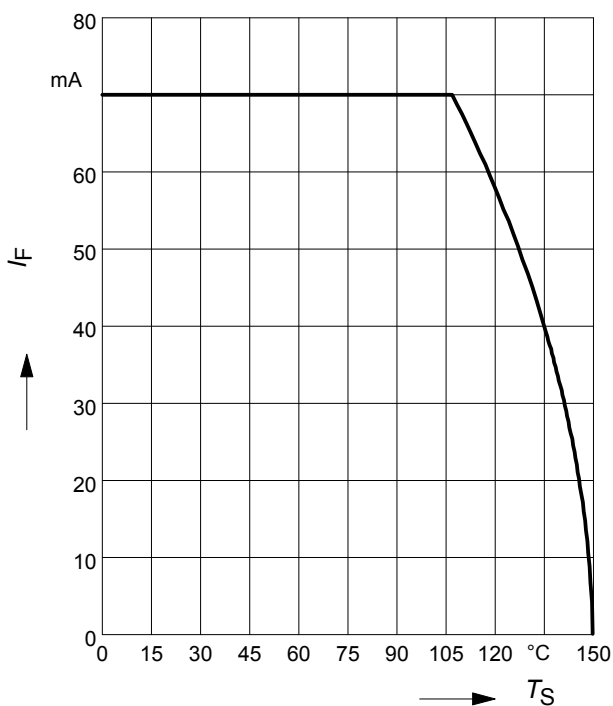
**Forward current  $I_F = f(T_S)$**

BAS70-02L



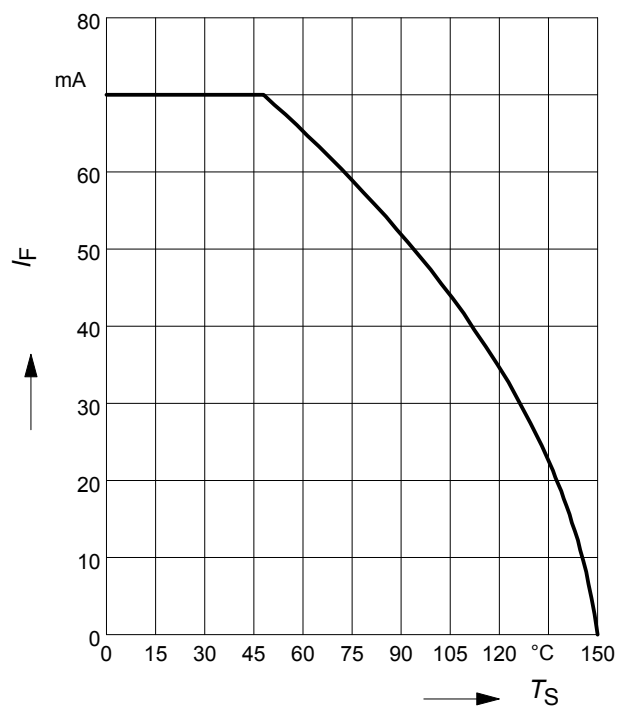
**Forward current  $I_F = f(T_S)$**

BAS70-02W, -02V

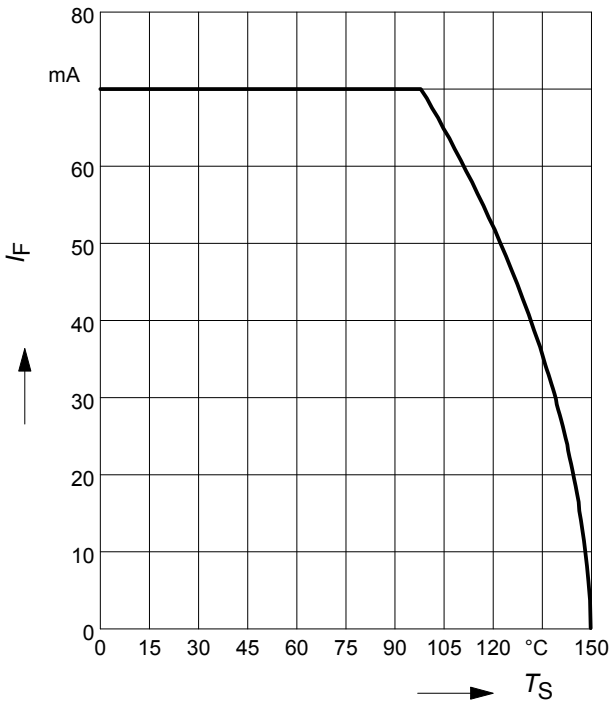


**Forward current  $I_F = f(T_S)$**

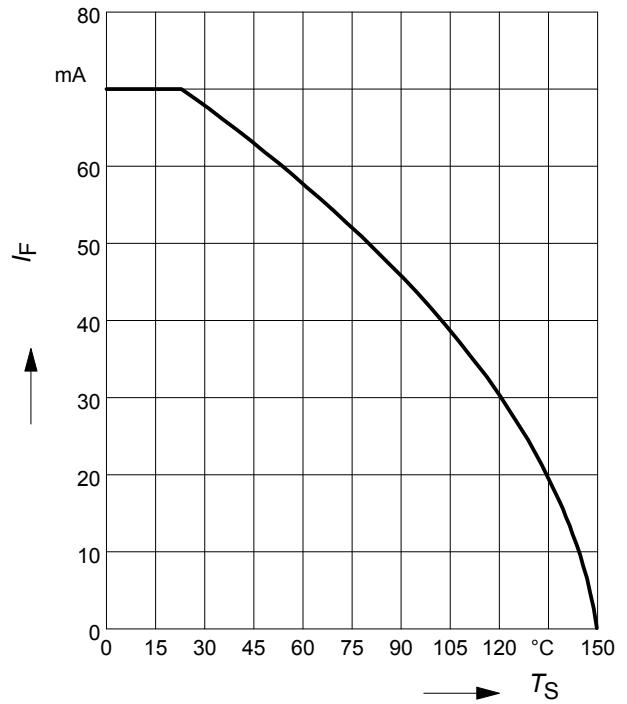
BAS70-04, BAS70-06



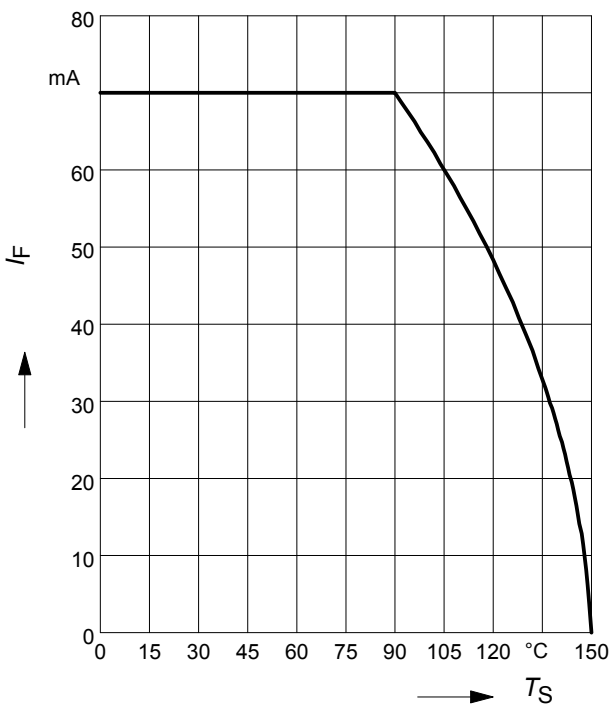
**Forward current  $I_F = f(T_S)$**   
 BAS70-04S/W, BAS70-06W, BAS170W



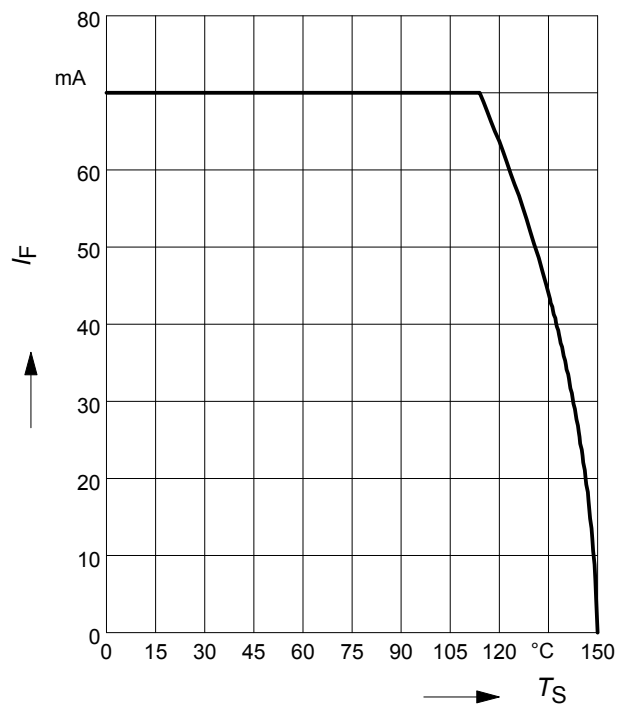
**Forward current  $I_F = f(T_S)$**   
 BAS70-05



**Forward current  $I_F = f(T_S)$**   
 BAS70-05W

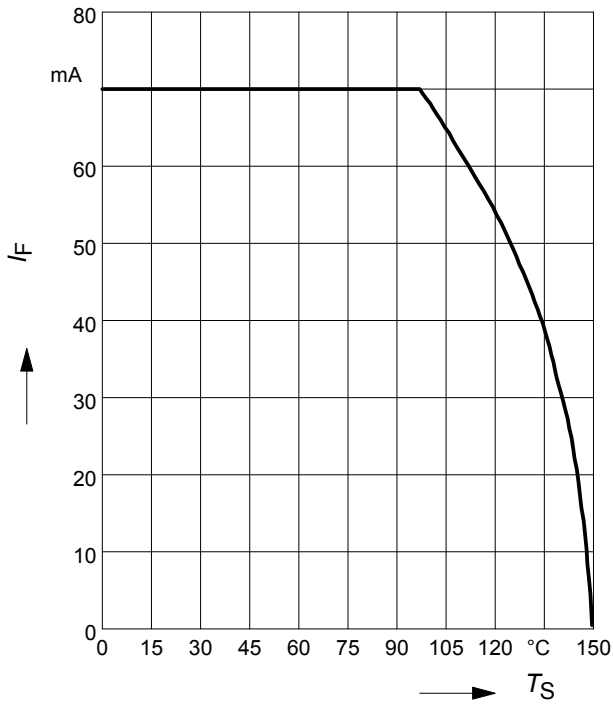


**Forward current  $I_F = f(T_S)$**   
 BAS70-07W



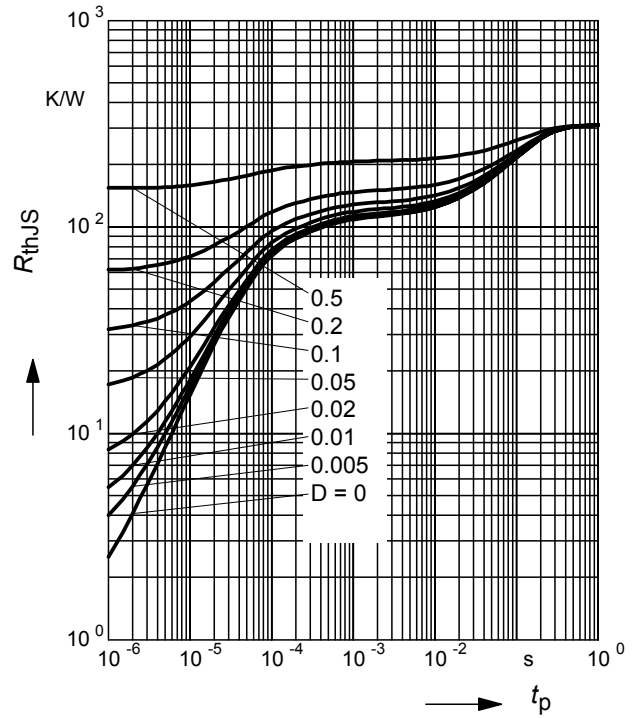
**Forward current  $I_F = f(T_S)$**

BAS170W



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

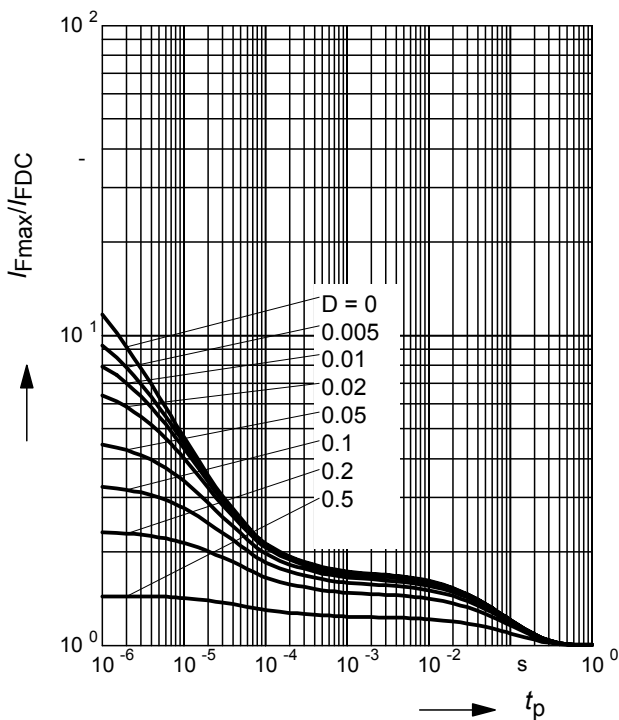
BAS70



**Permissible Pulse Load**

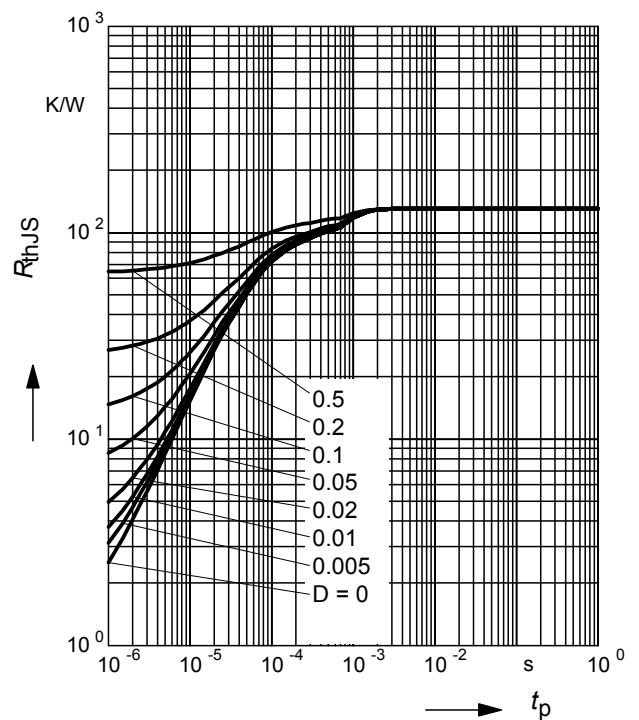
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70



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

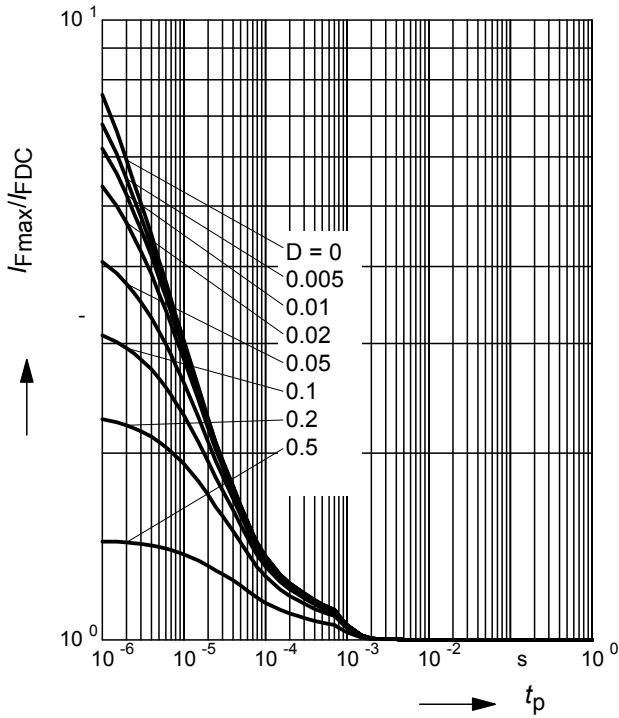
BAS70-02L



**Permissible Pulse Load**

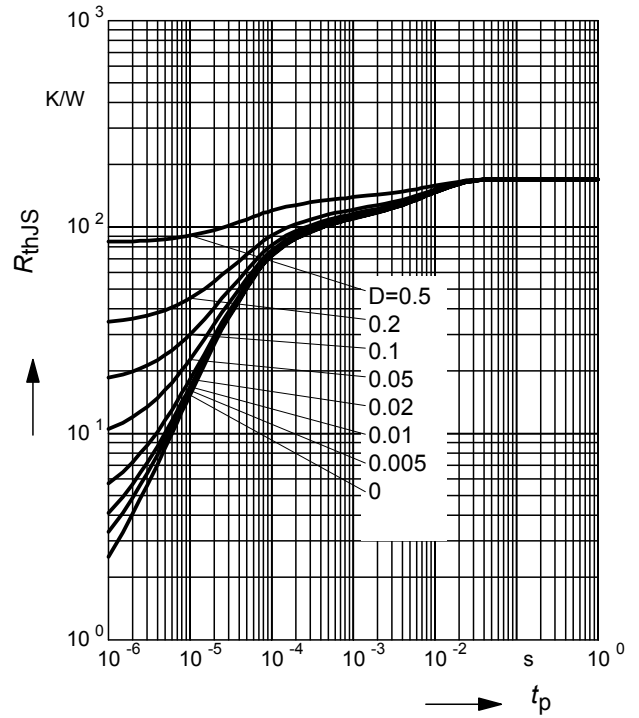
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70-02L



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

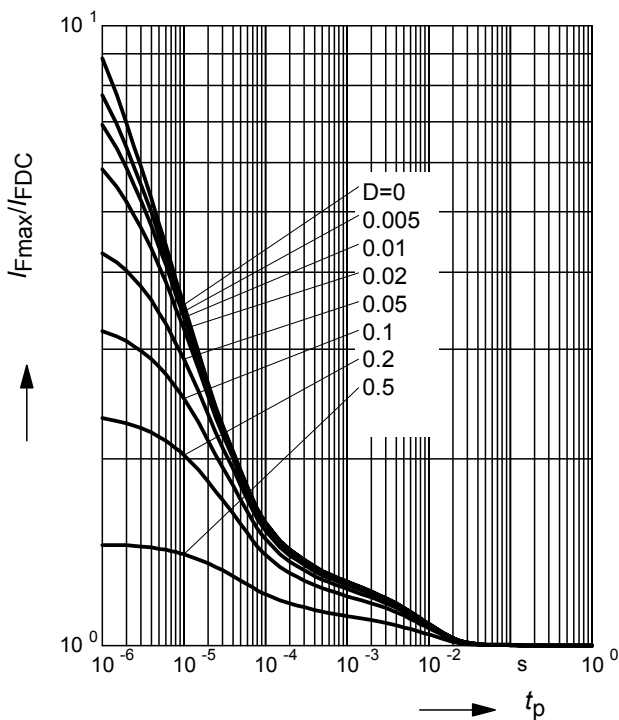
BAS70-02W, -02V



**Permissible Pulse Load**

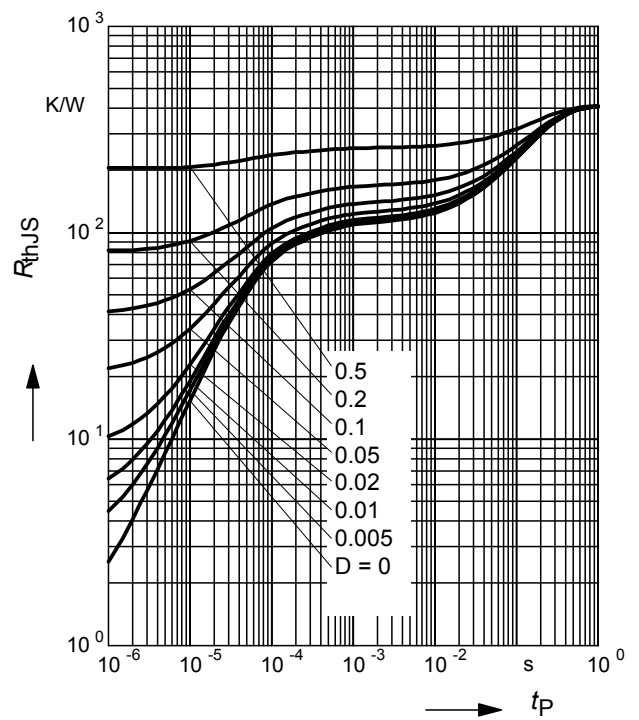
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70-02W, -02V



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

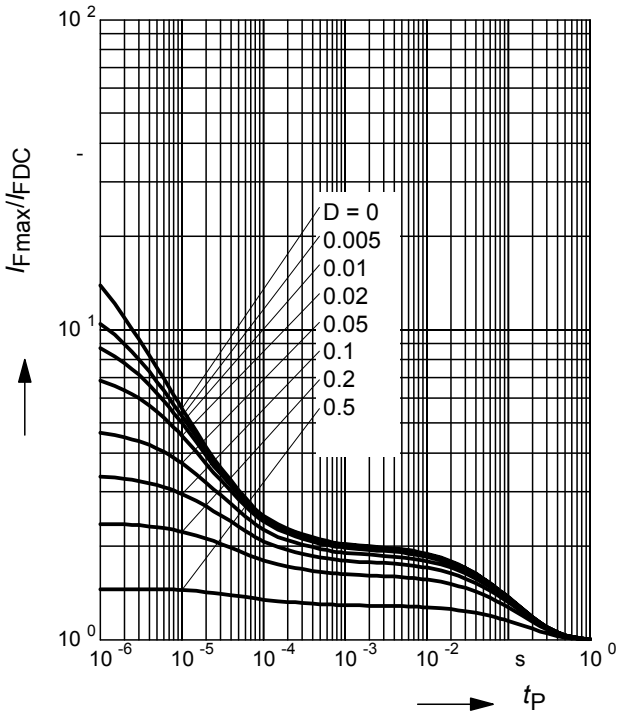
BAS70-04, BAS70-06



**Permissible Pulse Load**

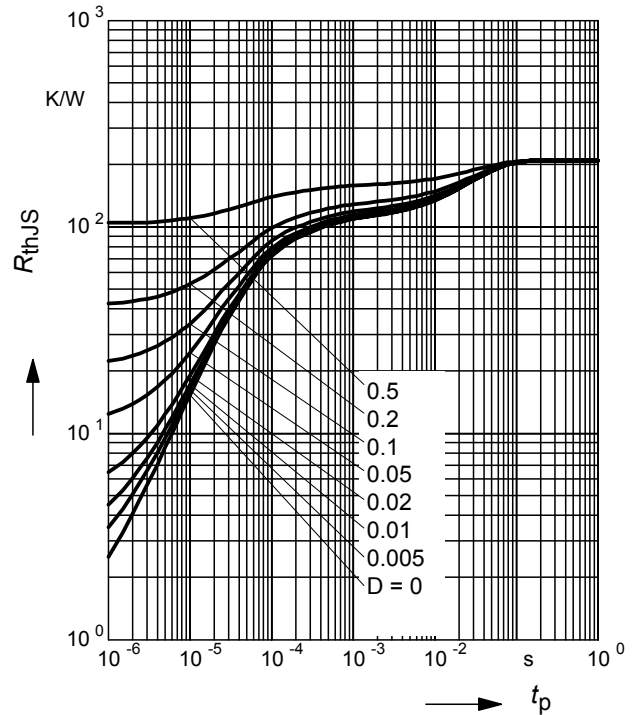
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAS70-04, BAS70-06



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

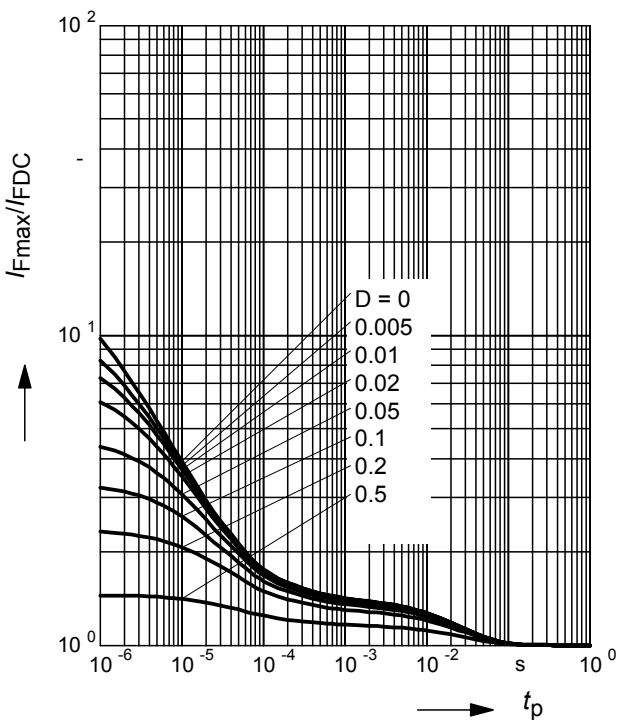
BAS70-04S



**Permissible Pulse Load**

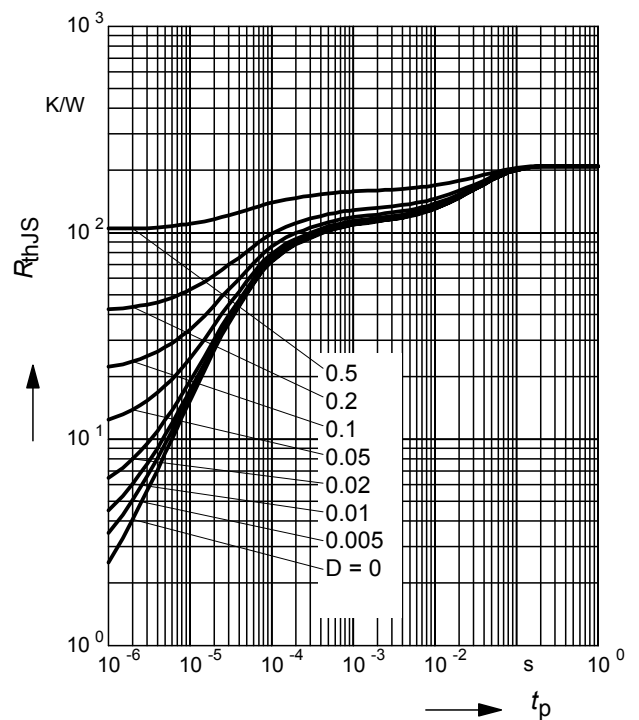
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAS70-04S



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

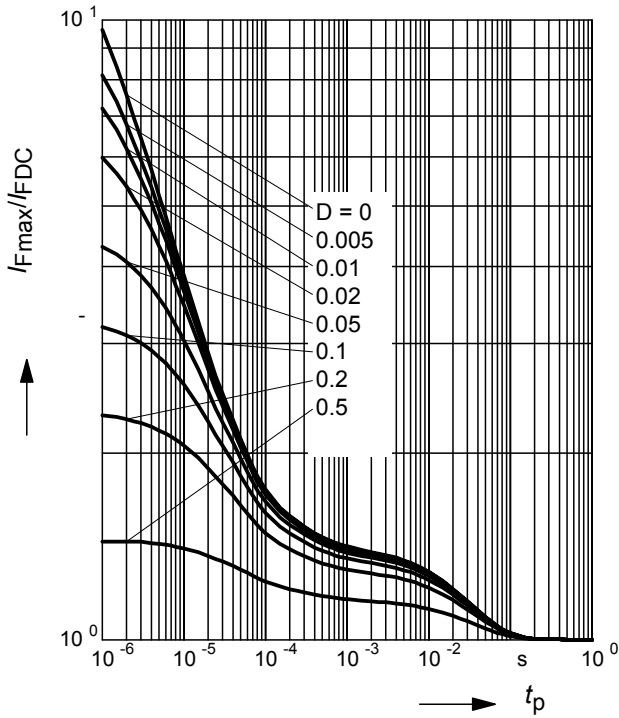
BAS70-04W, BAS70-06W



**Permissible Pulse Load**

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

BAS70-04W, BAS70-06W



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

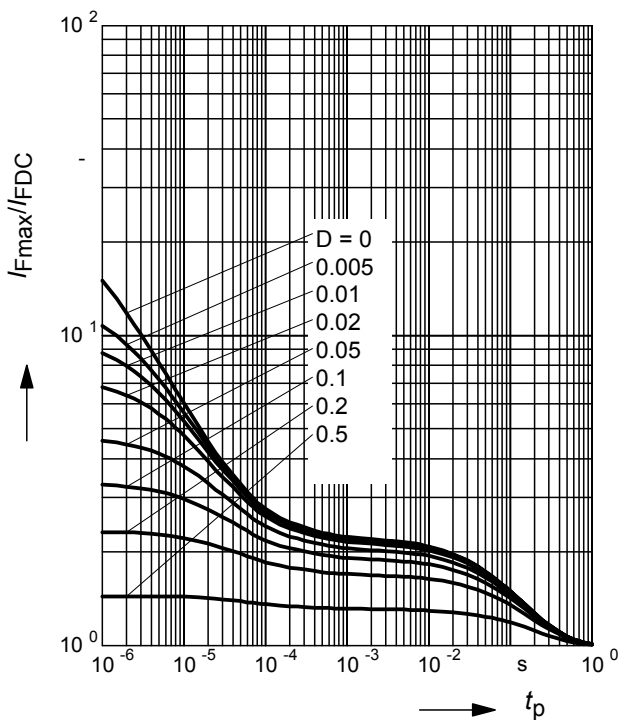
BAS70-05



**Permissible Pulse Load**

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

BAS70-05



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

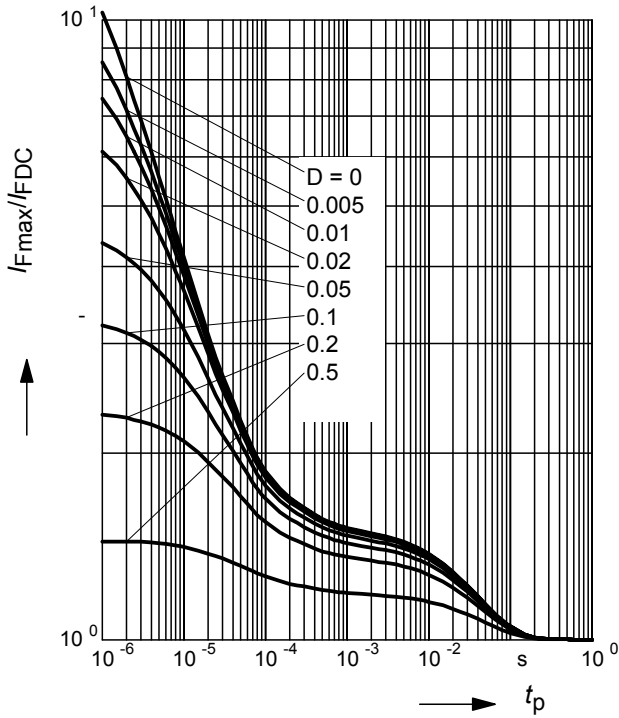
BAS70-05W



**Permissible Pulse Load**

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

BAS70-05W



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

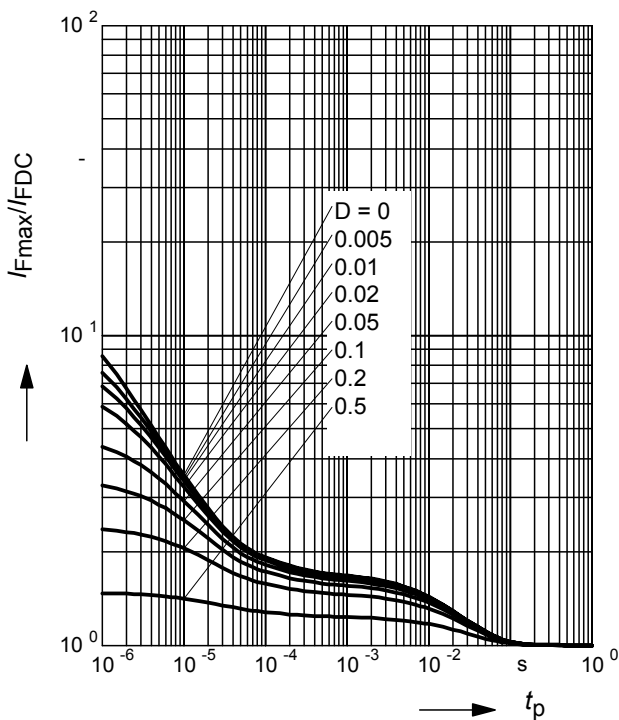
BAS70-07W



**Permissible Pulse Load**

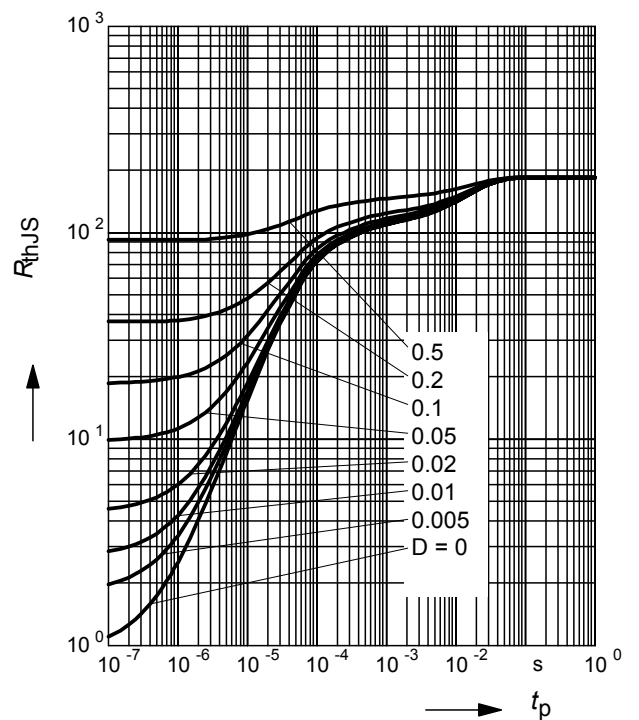
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAS70-07W



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

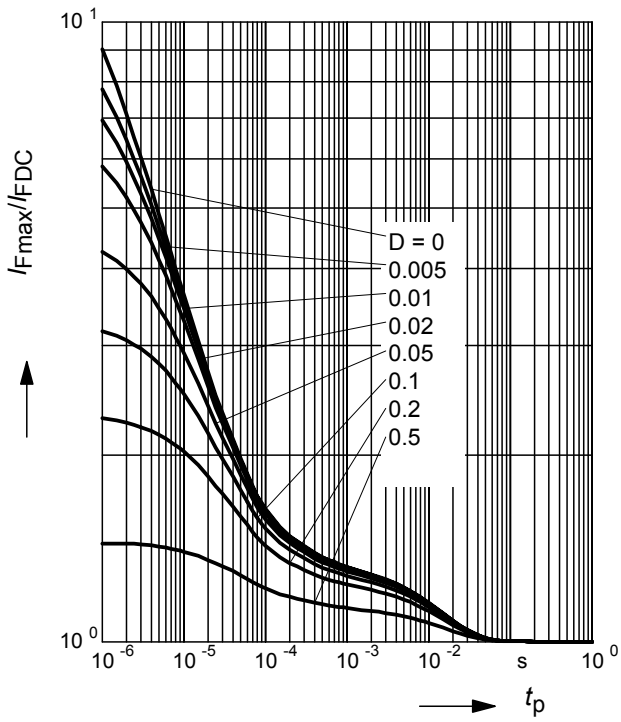
BAS170W



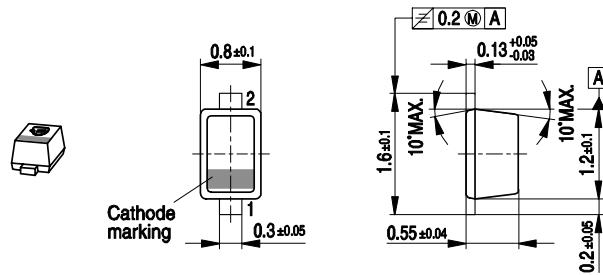
**Permissible Pulse Load**

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

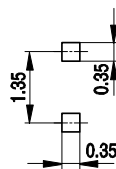
BAS170W



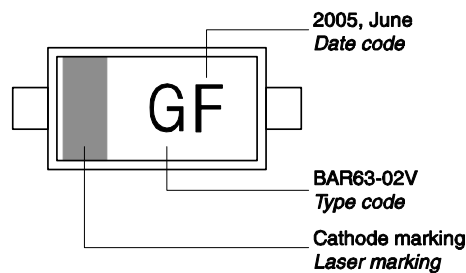
### Package Outline



### Foot Print

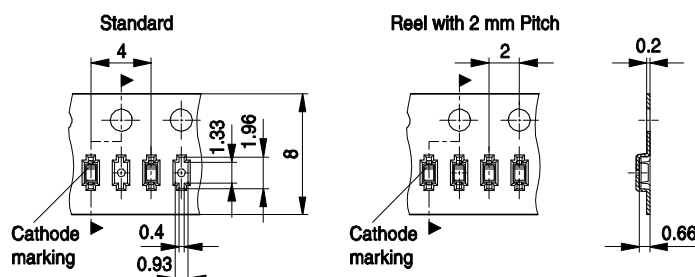


### Marking Layout (Example)

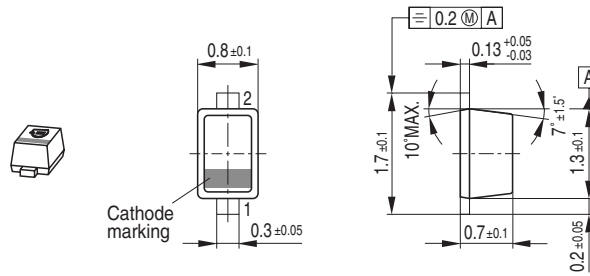


### Standard Packing

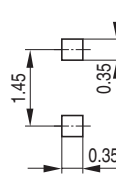
- Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel
- Reel  $\varnothing$ 180 mm = 8.000 Pieces/Reel (2 mm Pitch)
- Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel



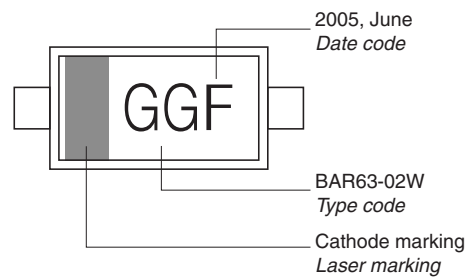
Package Outline



Foot Print

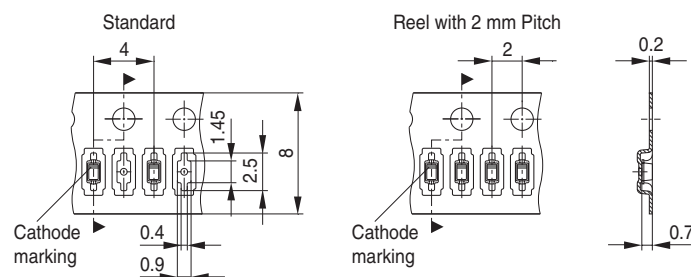


Marking Layout (Example)



Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel

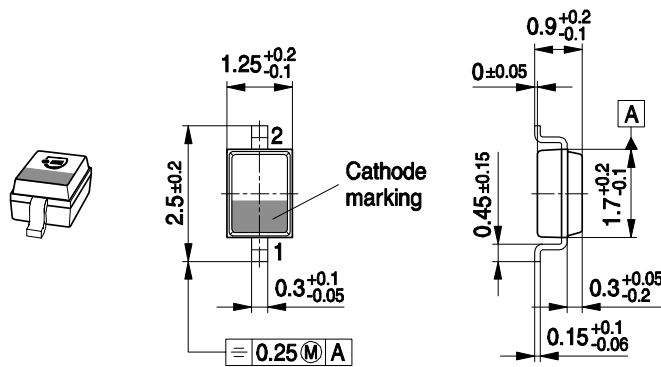


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

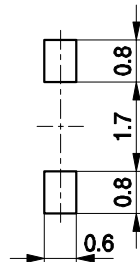
Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y	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.

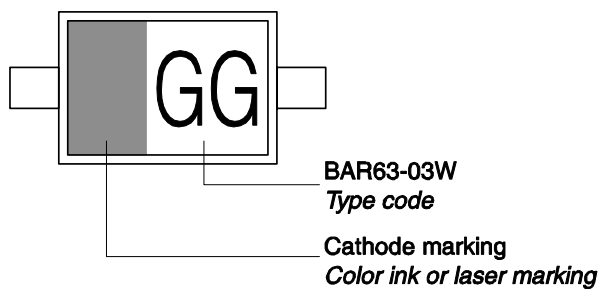
### Package Outline



### Foot Print

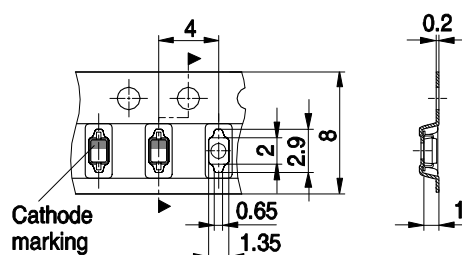


### Marking Layout (Example)

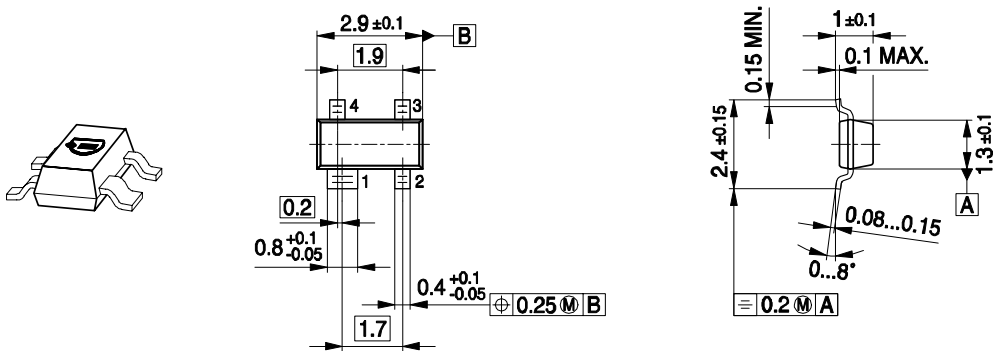


### Standard Packing

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



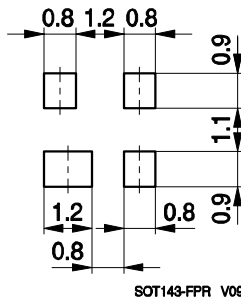
### Package Outline



Note: Mold flash, protrusions or gate burrs of 0,2 mm max. per side are not included

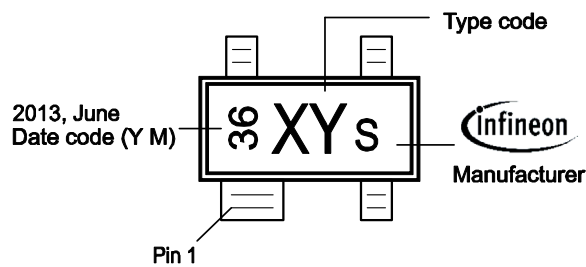
SOT143-PO V09

### Foot Print



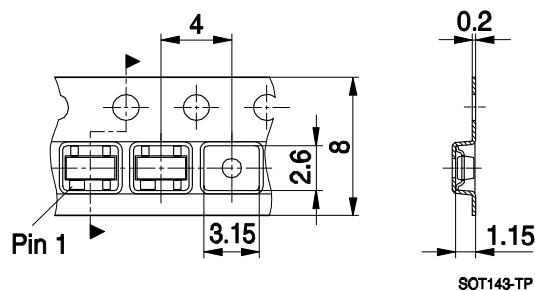
SOT143-FPR V09

### Marking Layout (Example)



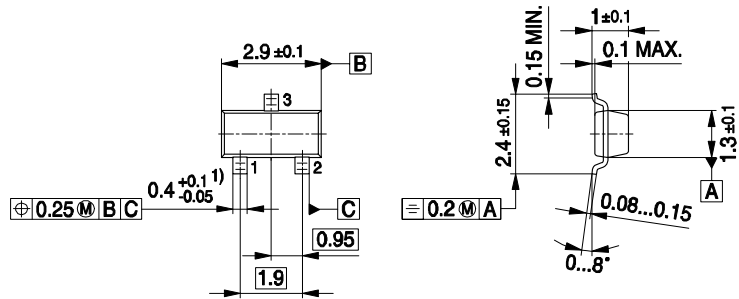
### Standard Packing

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



SOT143-TP

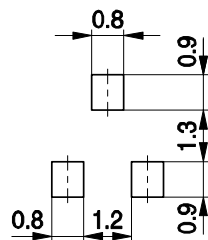
Package Outline



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

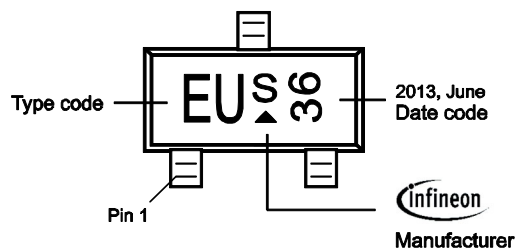
SOT23-PO V08

Foot Print



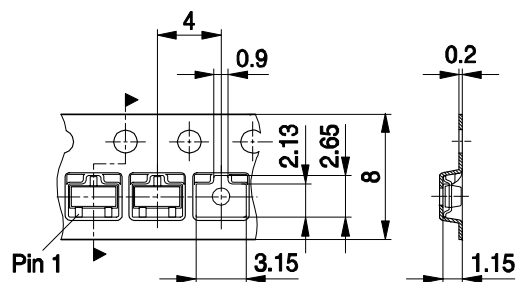
SOT23-FPR V08

Marking Layout



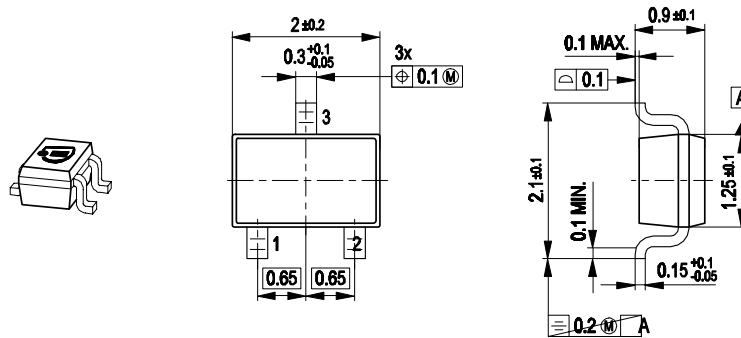
Standard Packing

Reel o 180 mm: 3.000 Pieces / Reel  
 Reel o 330 mm = 10.000 Pieces / Reel

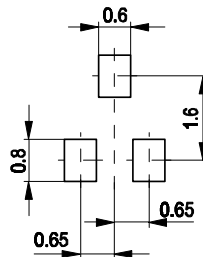


SOT23-TP V02

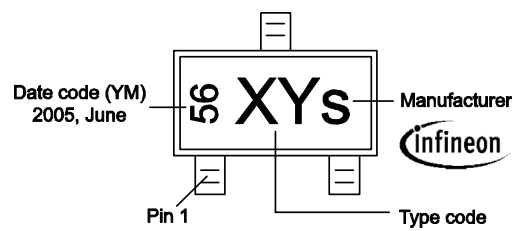
### Package Outline



### Foot Print

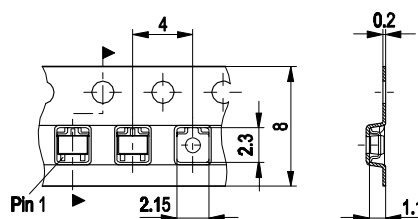


### Marking Layout (Example)

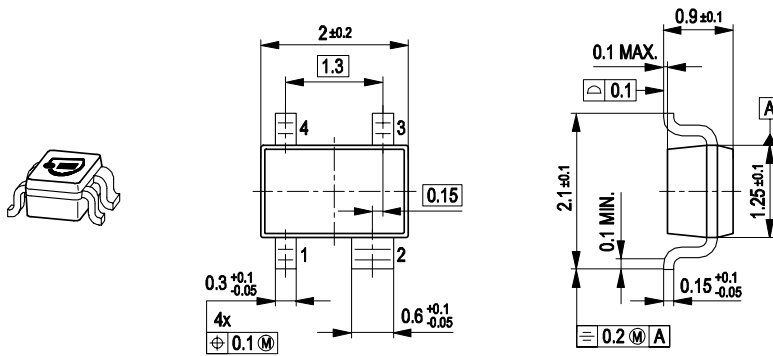


### Standard Packing

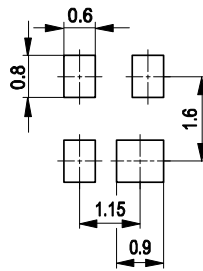
Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø330 mm = 10.000 Pieces/Reel



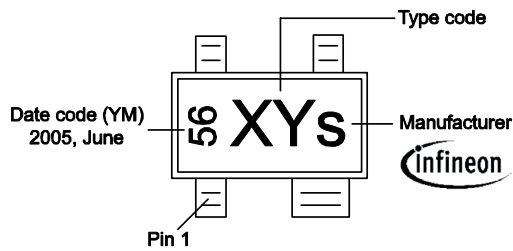
Package Outline



Foot Print

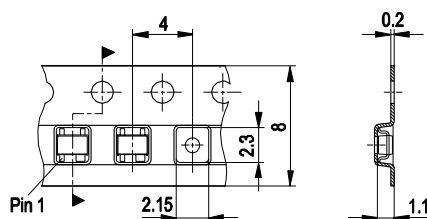


Marking Layout (Example)

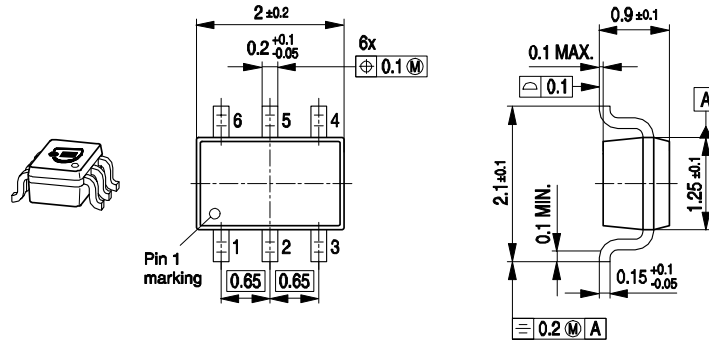


Standard Packing

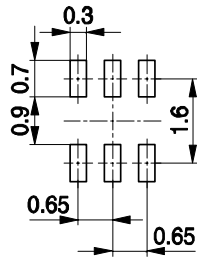
Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø330 mm = 10.000 Pieces/Reel



Package Outline

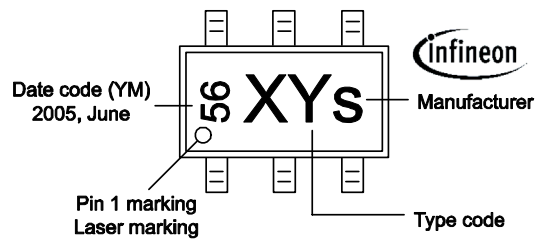


Foot Print



Marking Layout (Example)

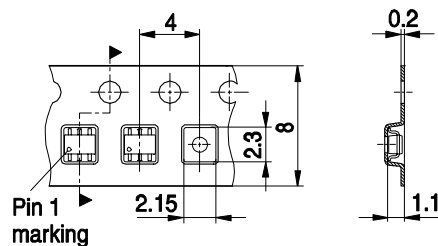
Small variations in positioning of Date code, Type code and Manufacture are possible.



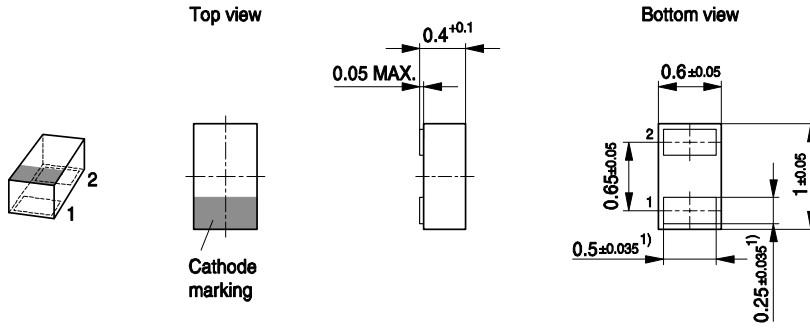
Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



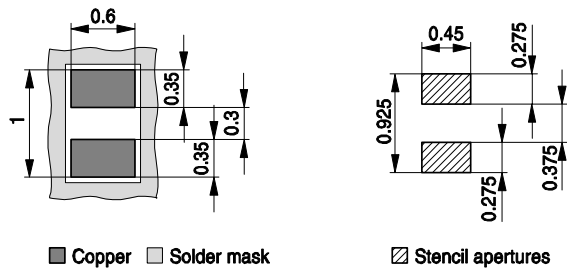
### Package Outline



1) Dimension applies to plated terminal

### Foot Print

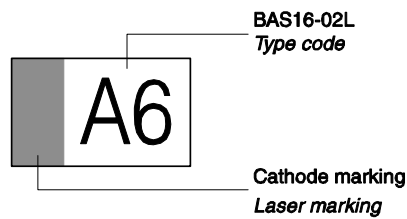
For board assembly information please refer to Infineon website "Packages"



■ Copper □ Solder mask

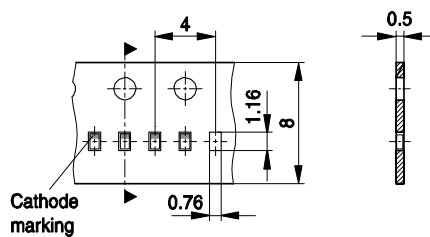
▨ Stencil apertures

### Marking Layout (Example)



### Standard Packing

Reel  $\varnothing$ 180 mm = 15.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 50.000 Pieces/Reel (optional)



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