

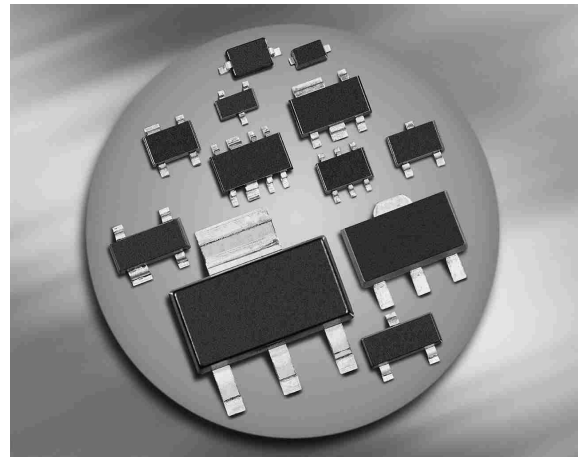


**THE DATASHEET OF
BAS70-04 E6433**



Silicon Schottky Diode

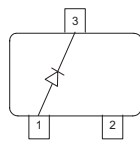
- General-purpose diode for high-speed switching
- Circuit protection
- Voltage clamping
- High-level detecting and mixing
- BAS70-04S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101¹⁾



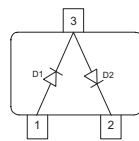
BAS170W
BAS70-02L
BAS70-02W
BAS70-02V



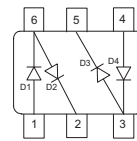
BAS70



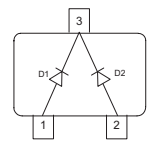
BAS70-04
BAS70-04W



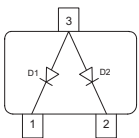
BAS70-04S



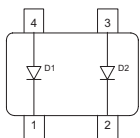
BAS70-05
BAS70-05W



BAS70-06
BAS70-06W



BAS70-07
BAS70-07W



¹BAS70-02L 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 ¹⁾	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 $I_{(BR)} = 10\text{ }\mu\text{A}$	$V_{(BR)}$	70	-	-	V
Reverse current $V_R = 50\text{ V}$	I_R	-	-	0.1	μA
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 ²⁾ $I_F = 10\text{ mA}$	ΔV_F	-	-	20	

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

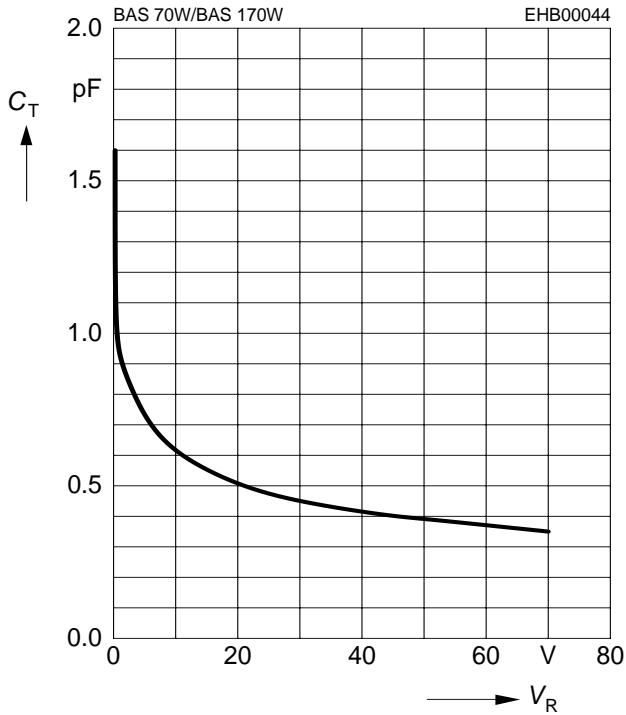
² ΔV_F is the difference between lowest and highest V_F in a multiple diode component.

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
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	-	Ω
Charge carrier life time $I_F = 25\text{ mA}$	τ_{rr}	-	-	100	ps

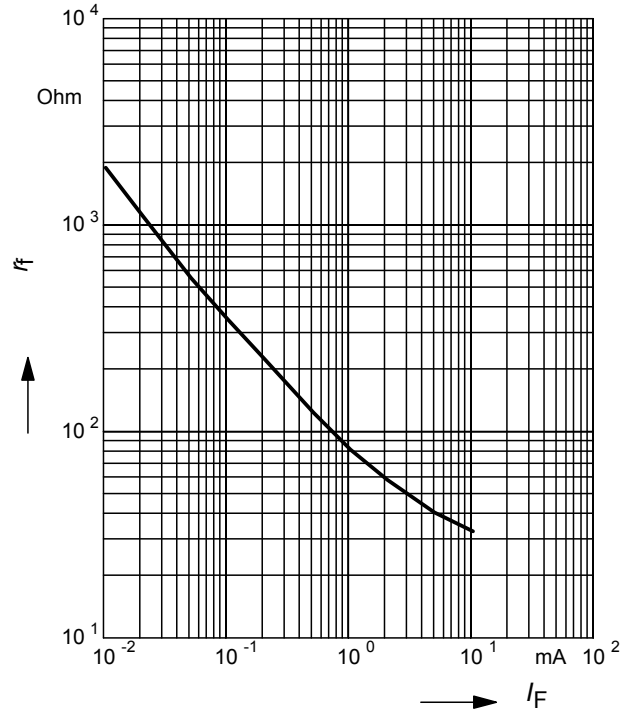
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



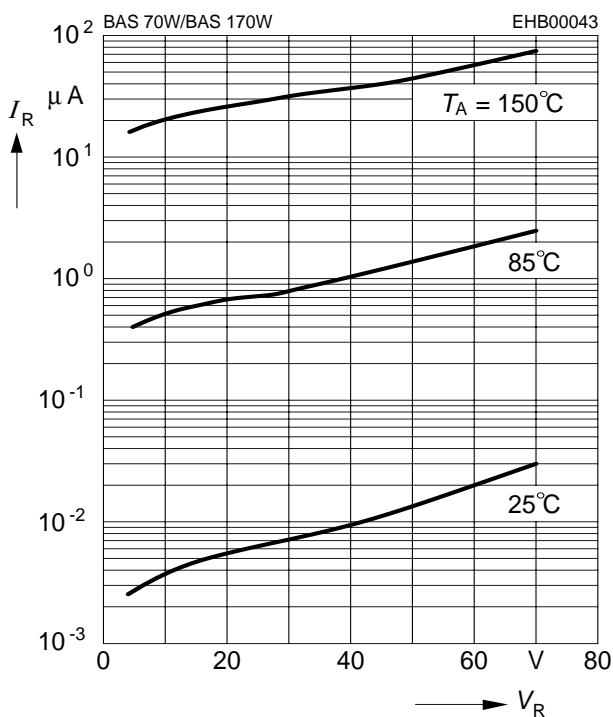
Forward resistance $r_f = f(I_F)$

$f = 10\text{kHz}$



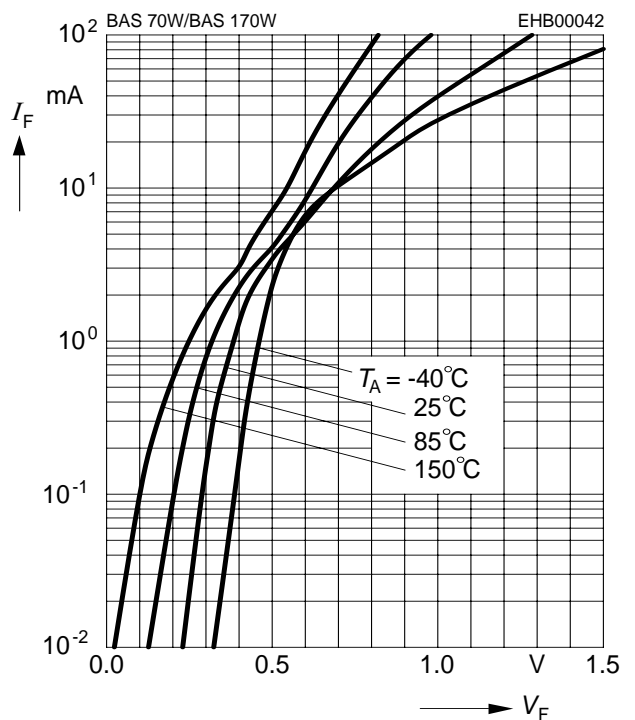
Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



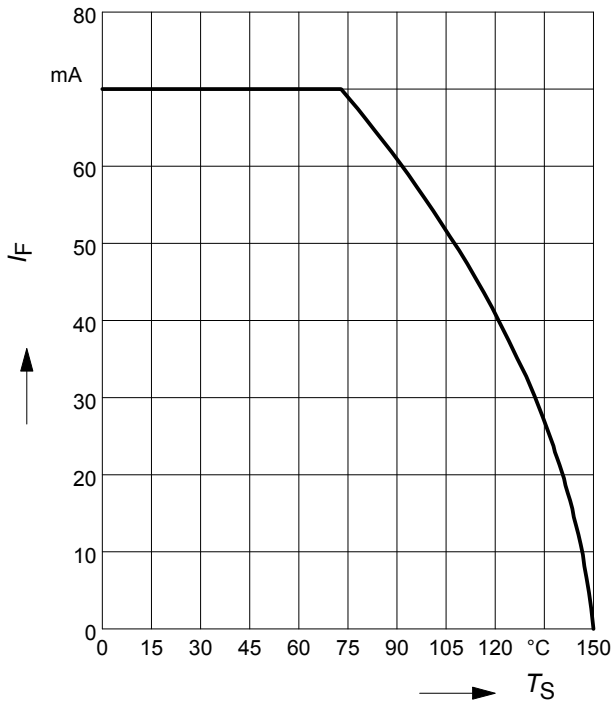
Forward current $I_F = f(V_F)$

$T_A = \text{Parameter}$



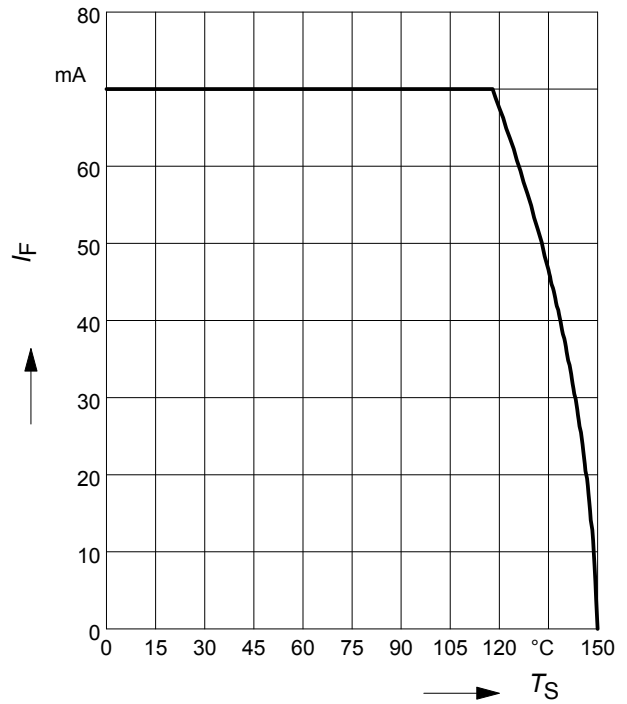
Forward current $I_F = f(T_S)$

BAS70, BAS70-07



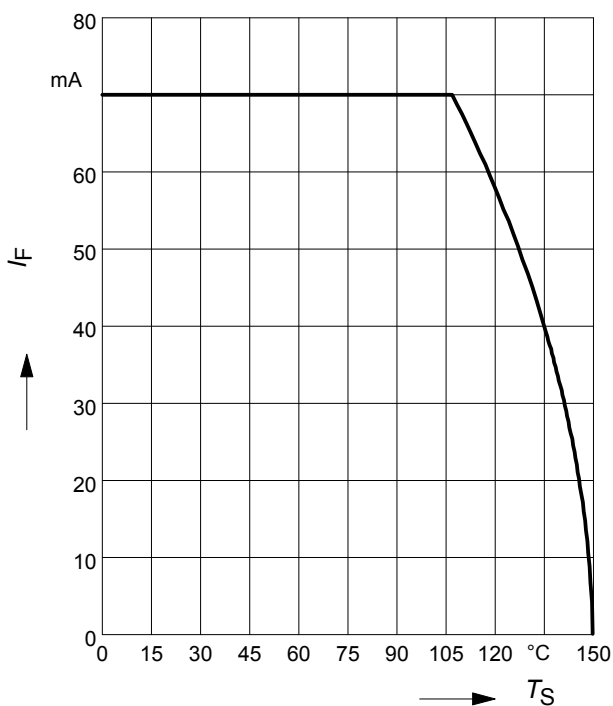
Forward current $I_F = f(T_S)$

BAS70-02L



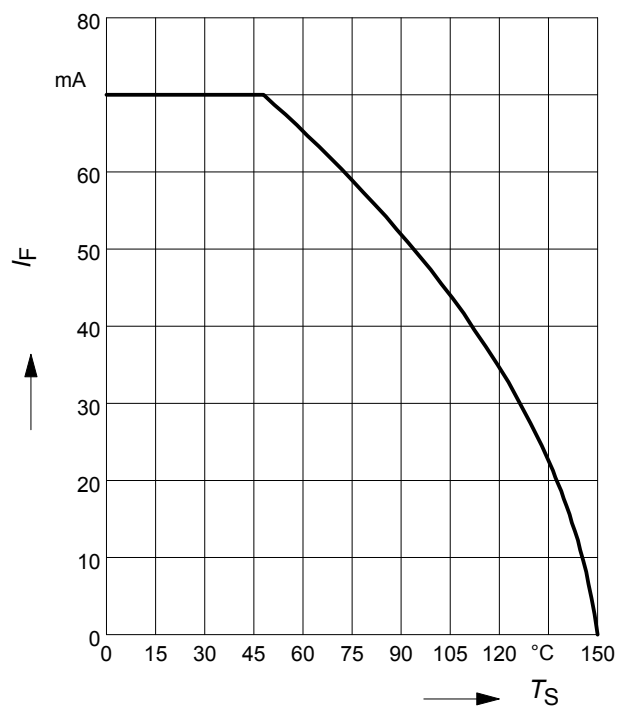
Forward current $I_F = f(T_S)$

BAS70-02W, -02V

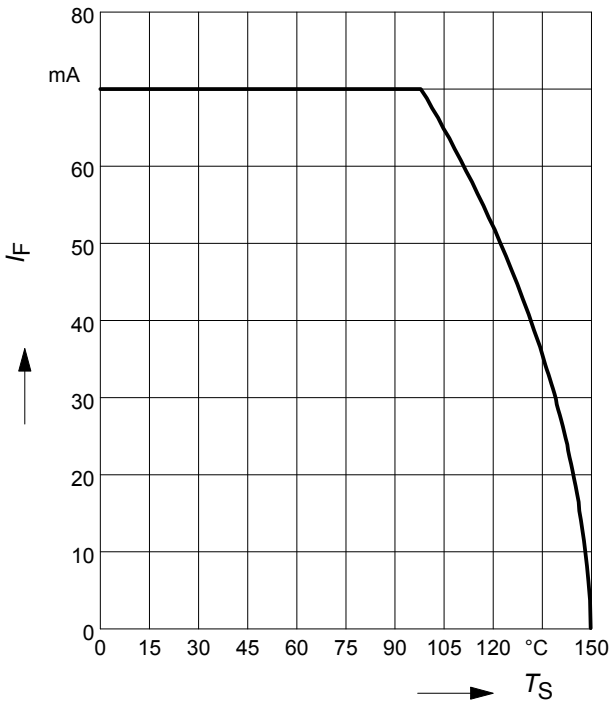


Forward current $I_F = f(T_S)$

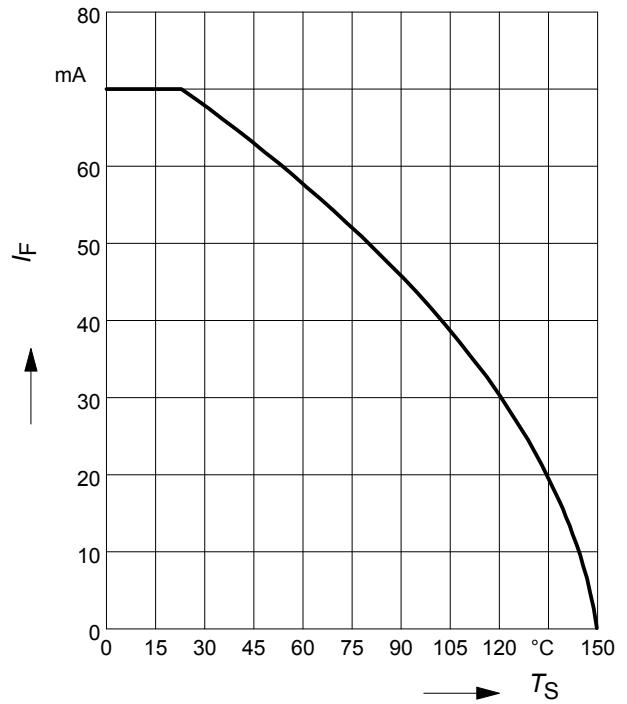
BAS70-04, BAS70-06



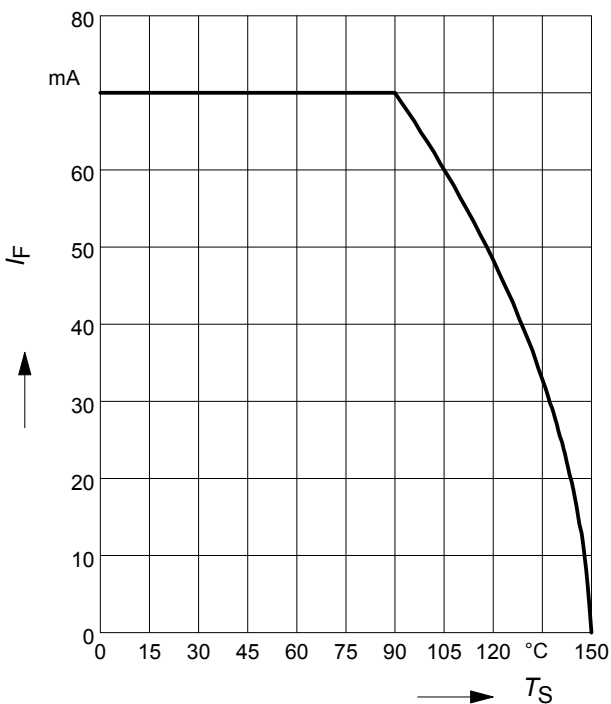
Forward current $I_F = f(T_S)$
 BAS70-04S/W, BAS70-06W, BAS170W



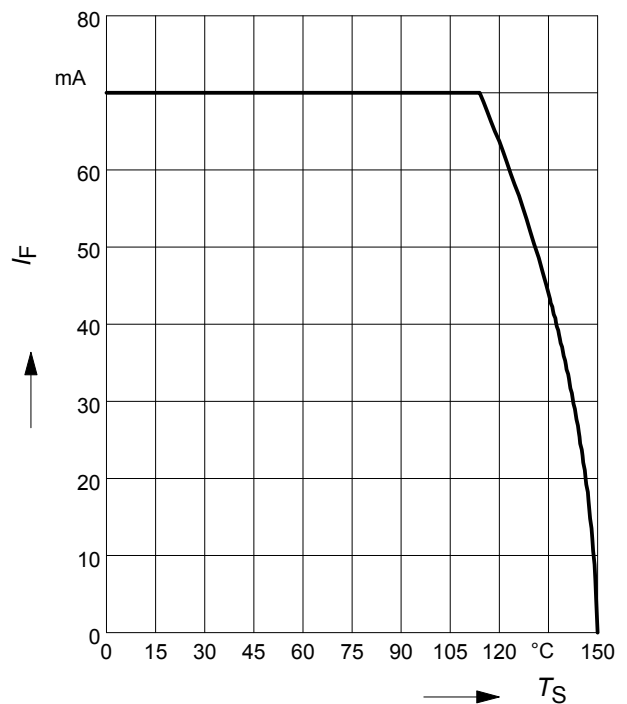
Forward current $I_F = f(T_S)$
 BAS70-05



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

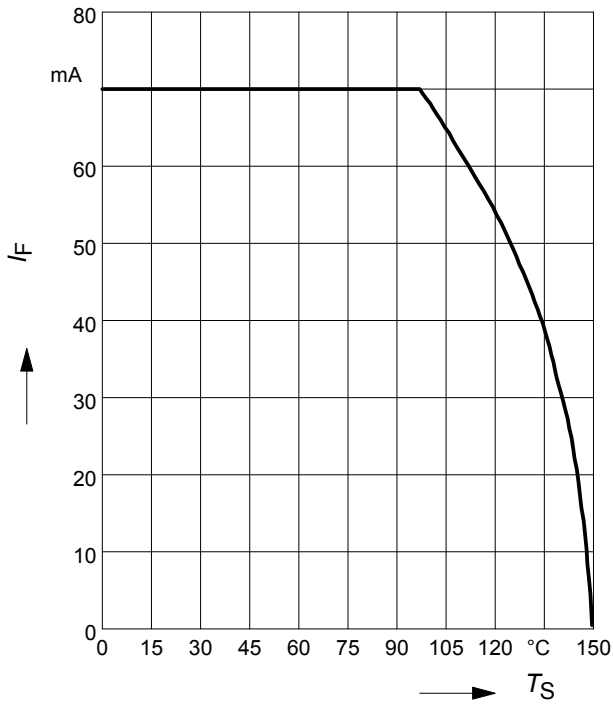


Forward current $I_F = f(T_S)$
 BAS70-07W



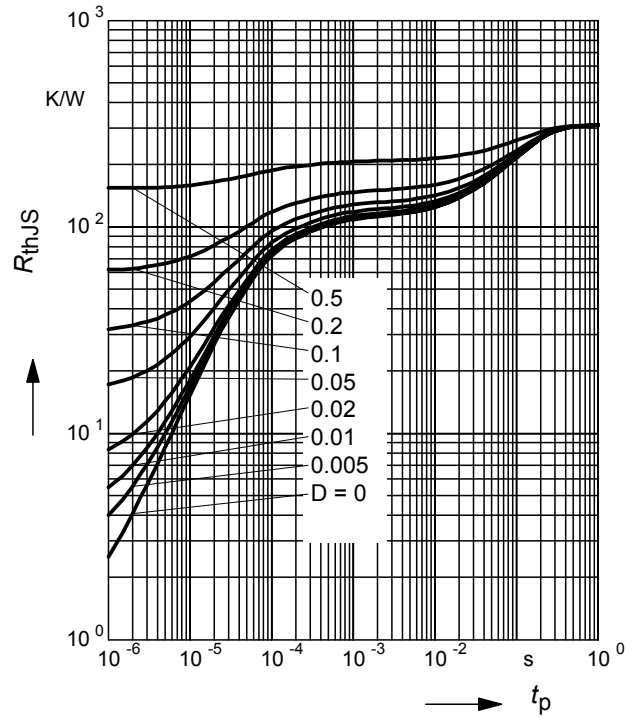
Forward current $I_F = f(T_S)$

BAS170W



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

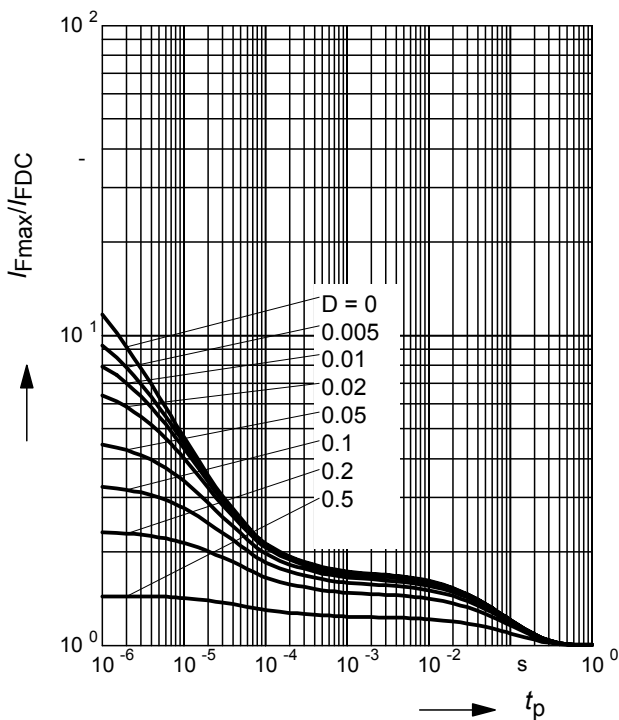
BAS70



Permissible Pulse Load

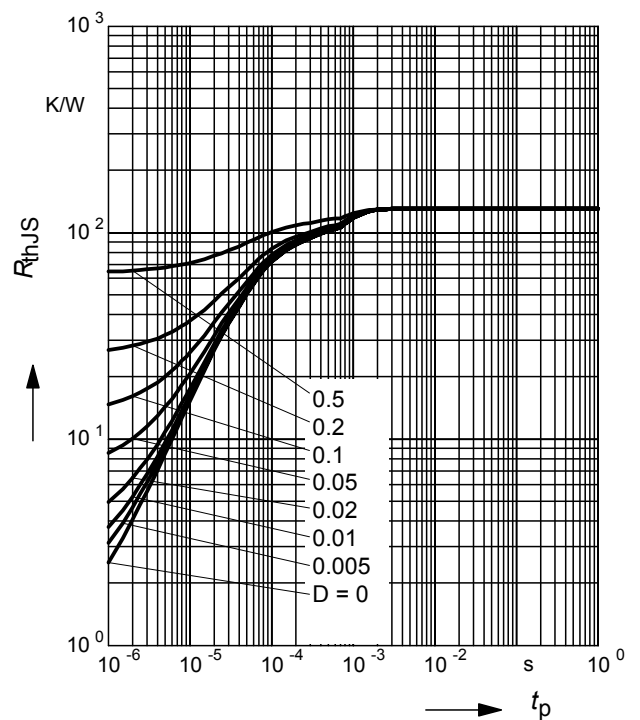
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70



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

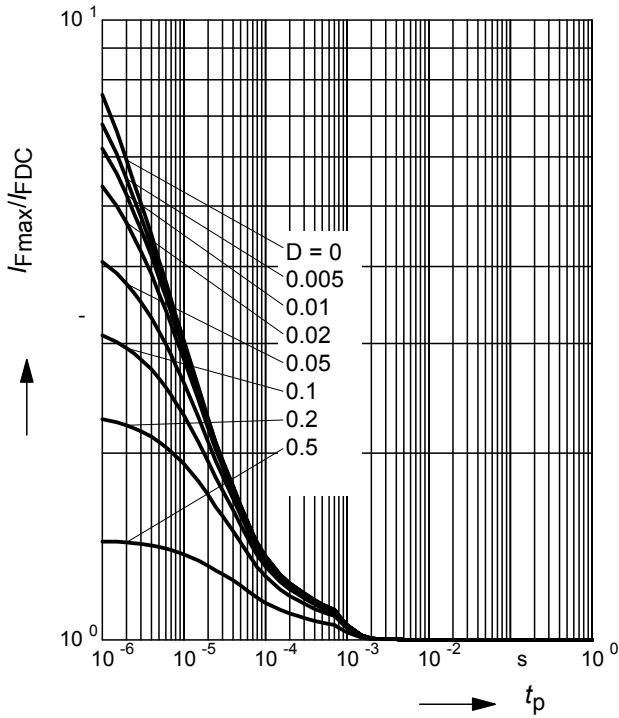
BAS70-02L



Permissible Pulse Load

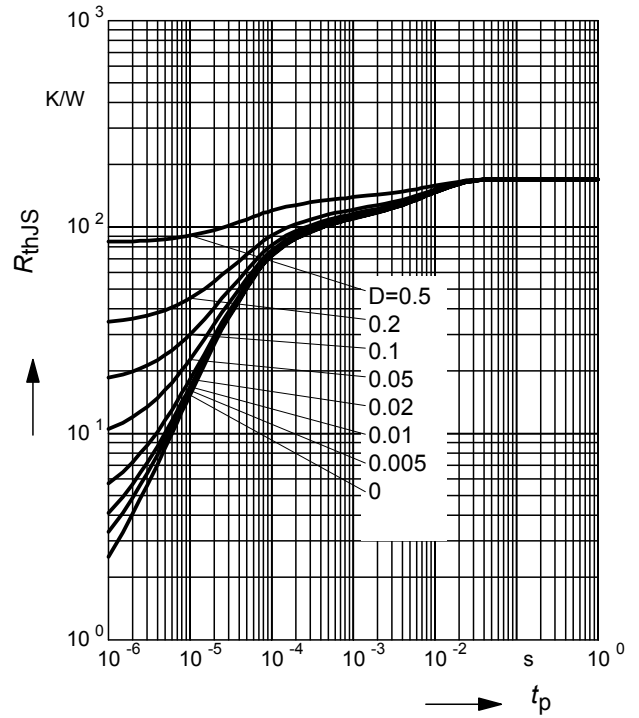
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70-02L



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

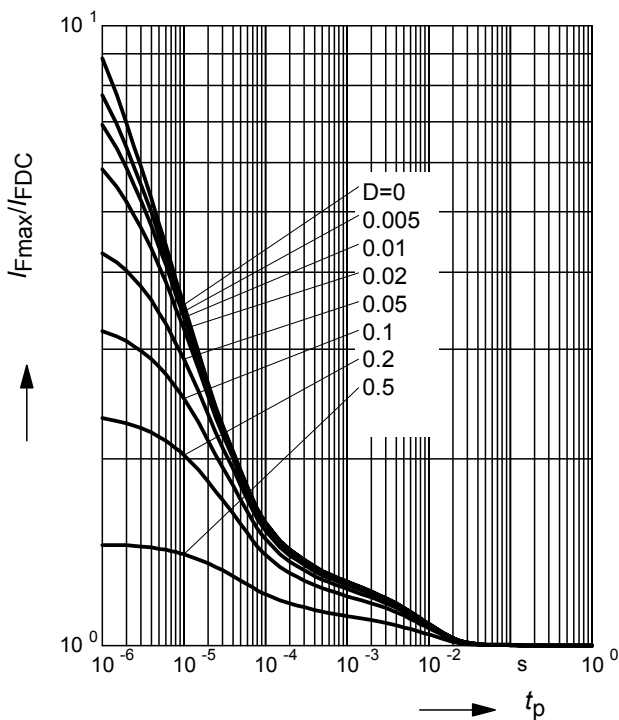
BAS70-02W, -02V



Permissible Pulse Load

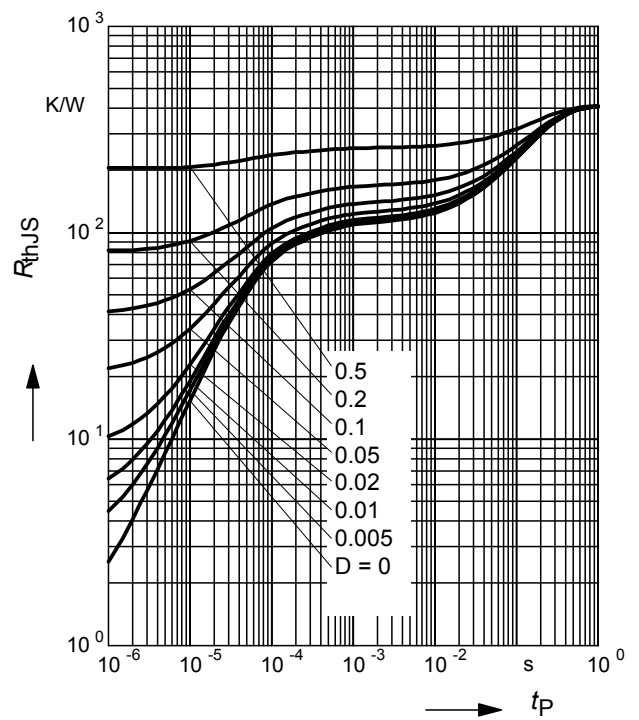
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70-02W, -02V



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

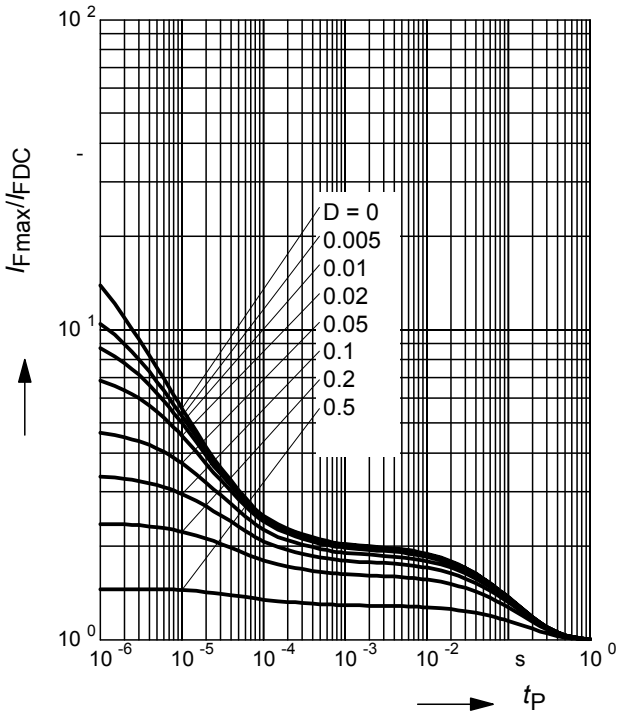
BAS70-04, BAS70-06



Permissible Pulse Load

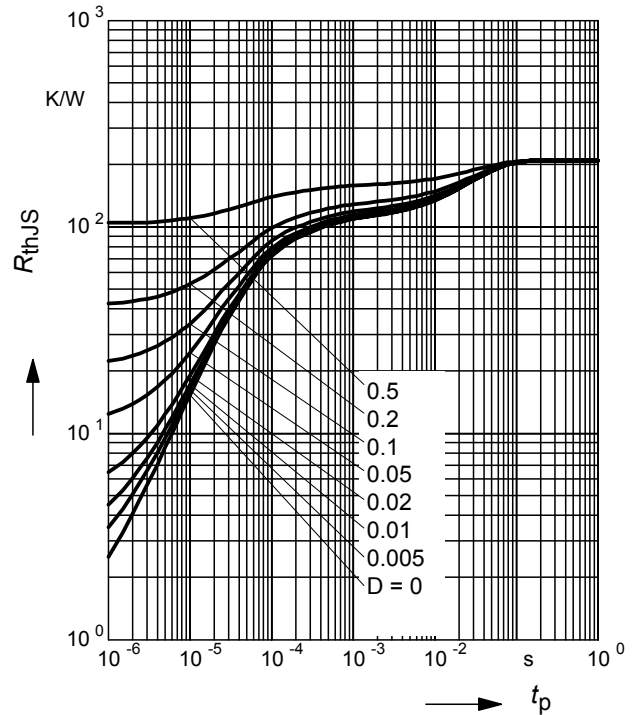
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70-04, BAS70-06



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

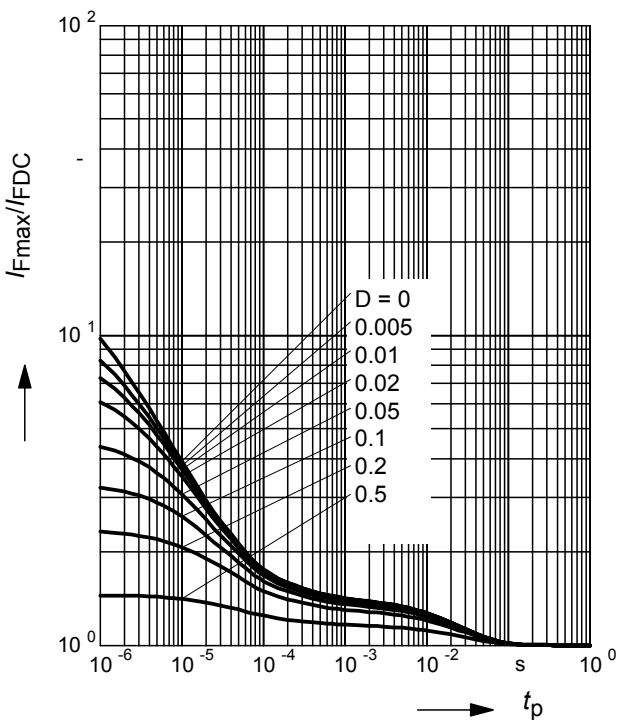
BAS70-04S



Permissible Pulse Load

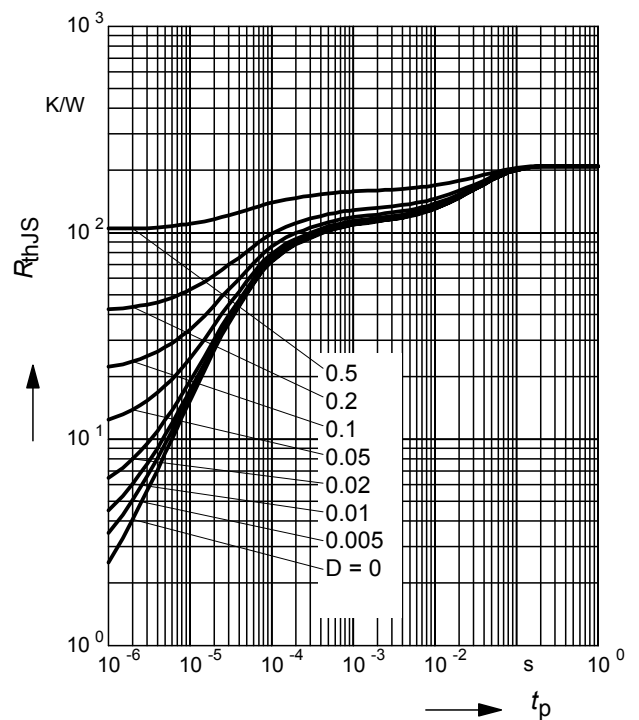
$I_{Fmax} / I_{FDC} = f(t_p)$

BAS70-04S



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

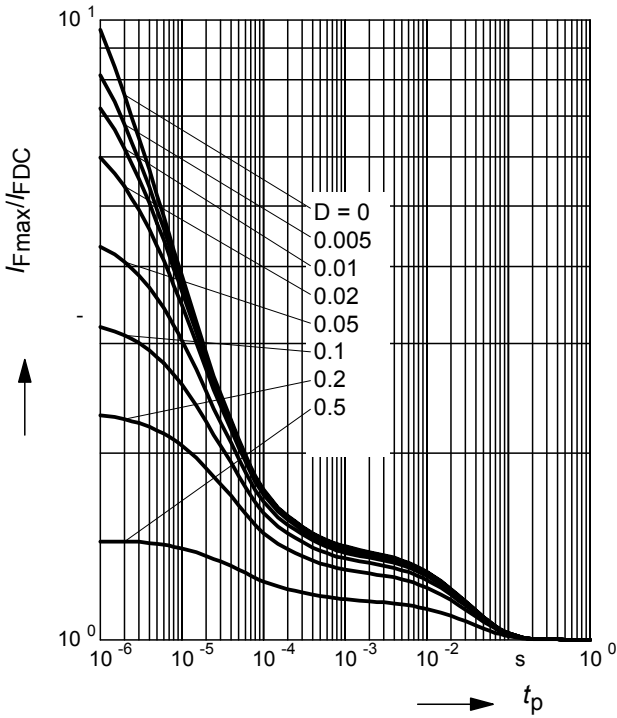
BAS70-04W, BAS70-06W



Permissible Pulse Load

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

BAS70-04W, BAS70-06W



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

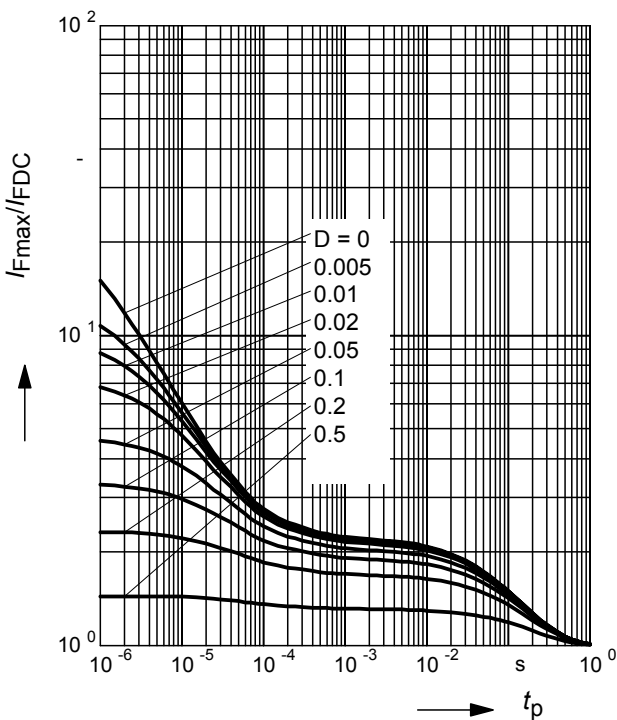
BAS70-05



Permissible Pulse Load

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

BAS70-05



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

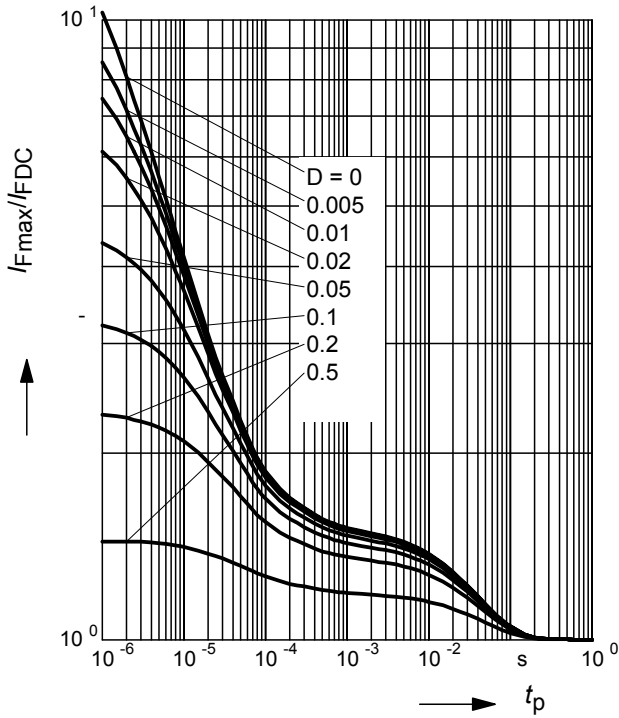
BAS70-05W



Permissible Pulse Load

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

BAS70-05W



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

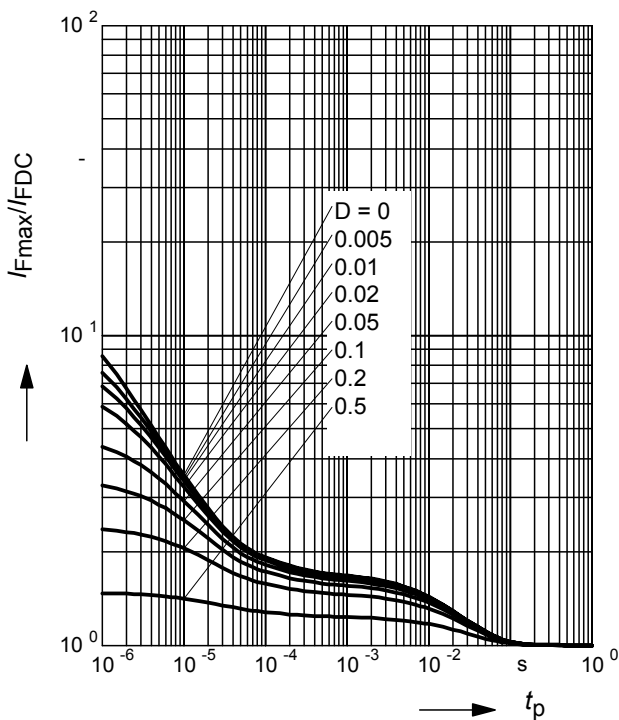
BAS70-07W



Permissible Pulse Load

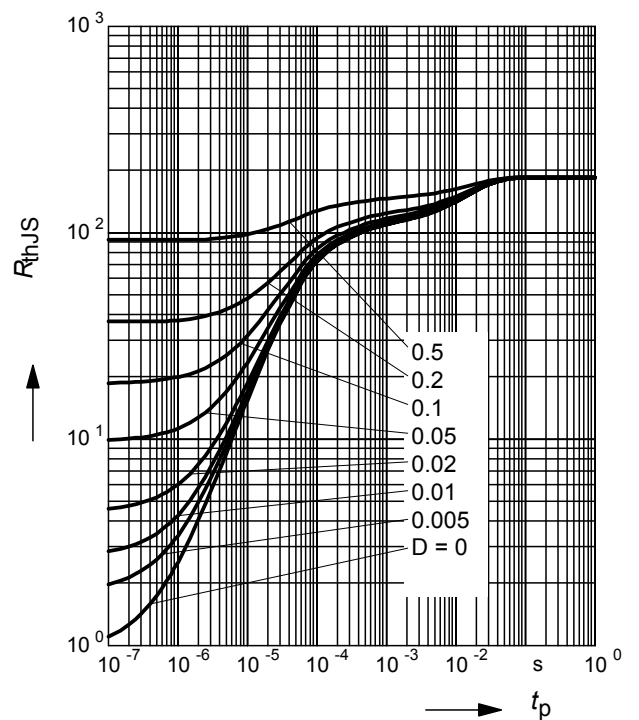
$$I_{Fmax} / I_{FDC} = f(t_p)$$

BAS70-07W



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

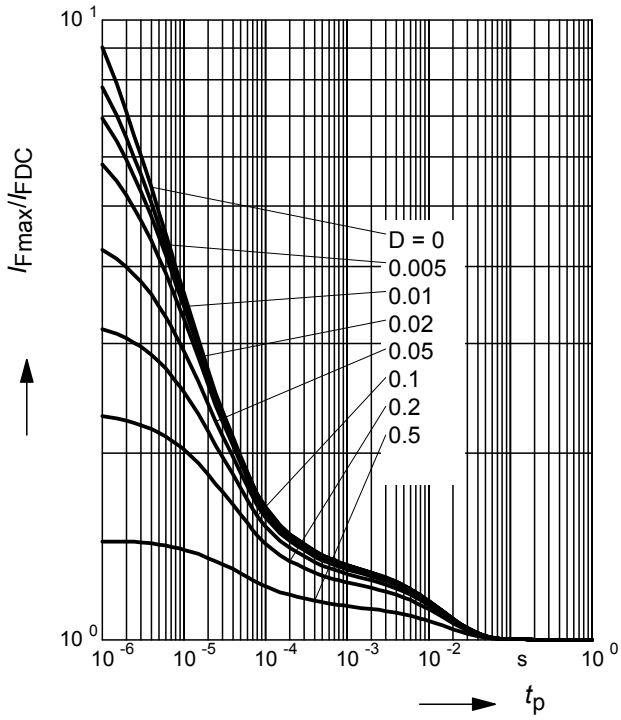
BAS170W



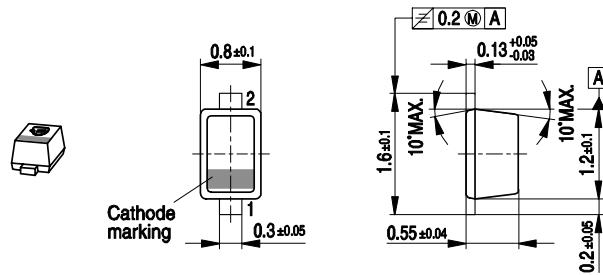
Permissible Pulse Load

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

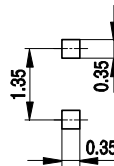
BAS170W



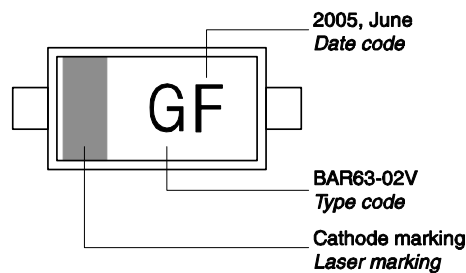
Package Outline



Foot Print

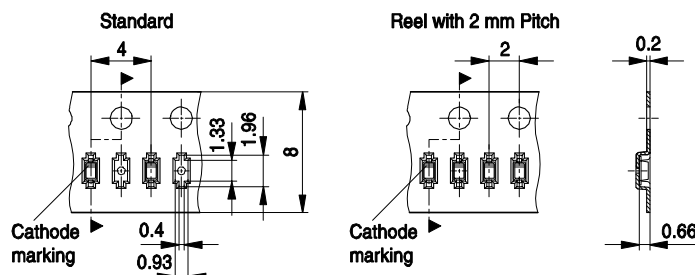


Marking Layout (Example)

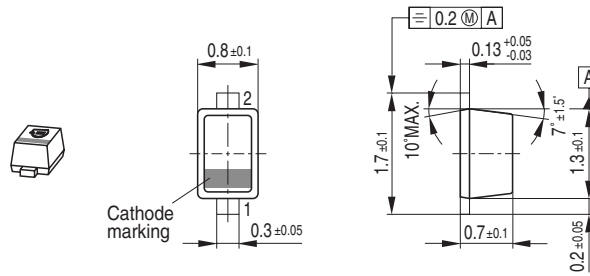


Standard Packing

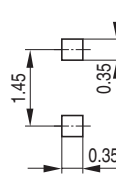
- Reel \varnothing 180 mm = 3.000 Pieces/Reel
- Reel \varnothing 180 mm = 8.000 Pieces/Reel (2 mm Pitch)
- Reel \varnothing 330 mm = 10.000 Pieces/Reel



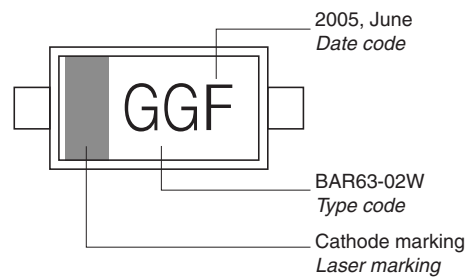
Package Outline



Foot Print

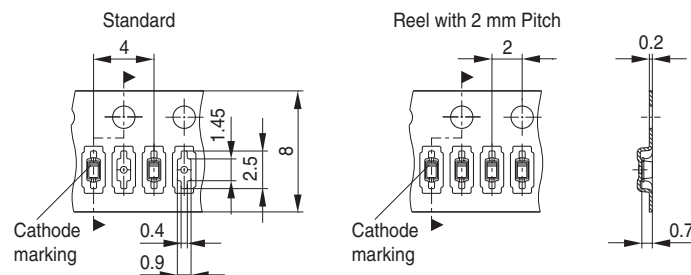


Marking Layout (Example)



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

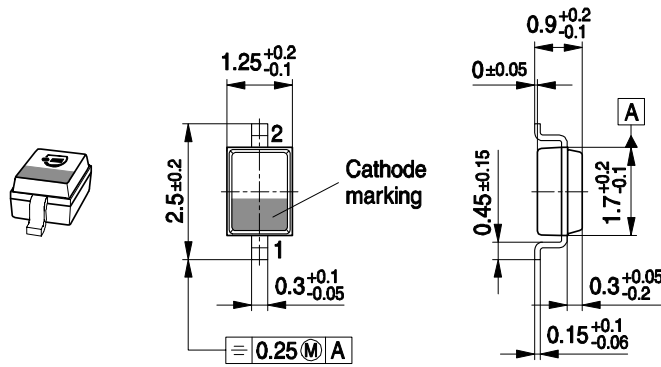


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75¹⁾) CES-Code

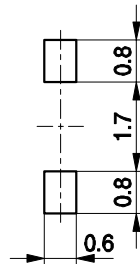
Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y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

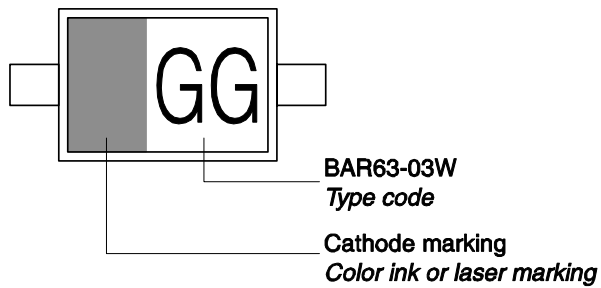
Package Outline



Foot Print

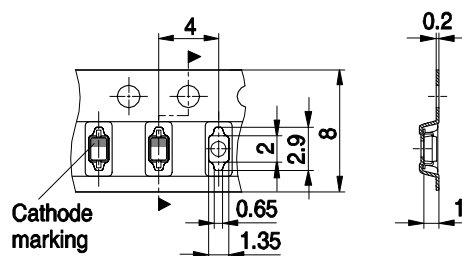


Marking Layout (Example)

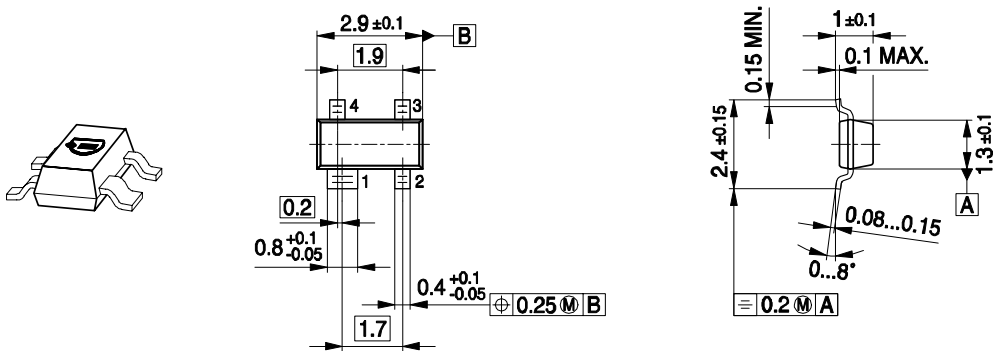


Standard Packing

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



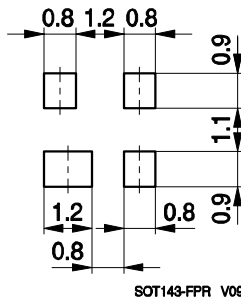
Package Outline



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

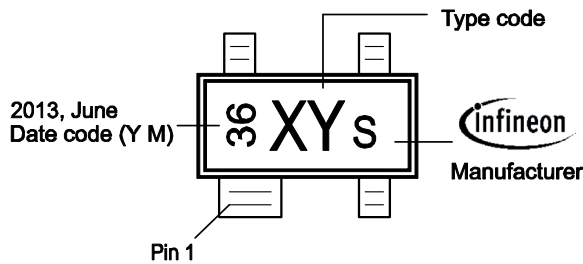
SOT143-PO V09

Foot Print



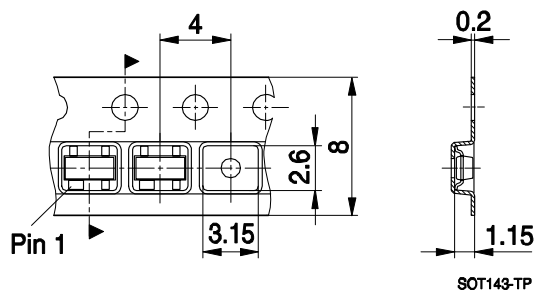
SOT143-FPR V09

Marking Layout (Example)



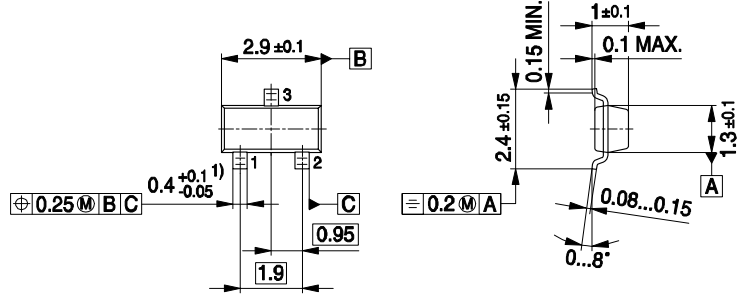
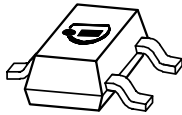
Standard Packing

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



SOT143-TP

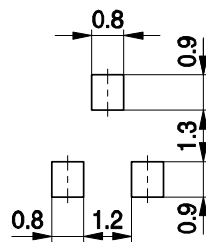
Package Outline



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

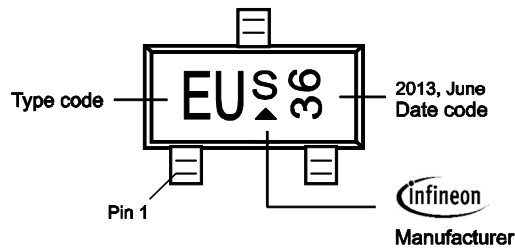
SOT23-PO V08

Foot Print



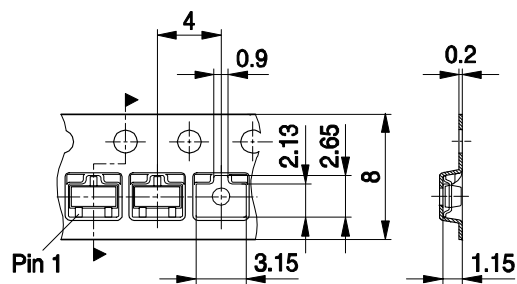
SOT23-FPR V08

Marking Layout



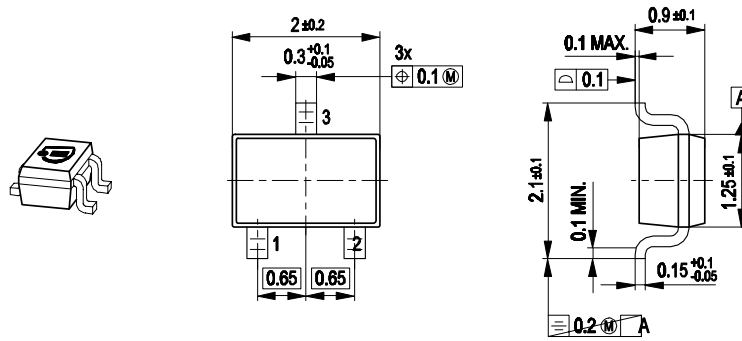
Standard Packing

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

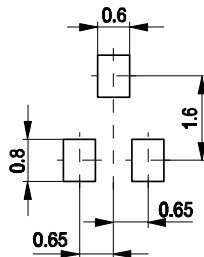


SOT23-TP V02

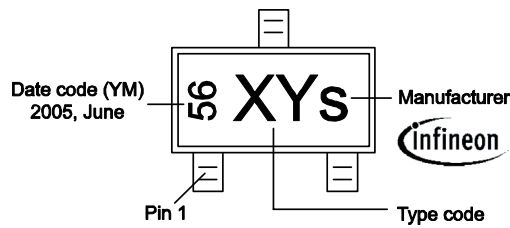
Package Outline



Foot Print

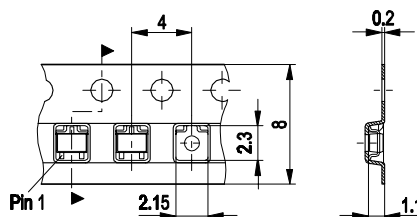


Marking Layout (Example)

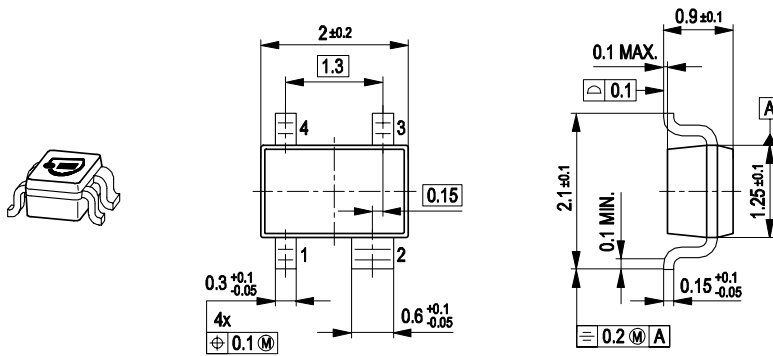


Standard Packing

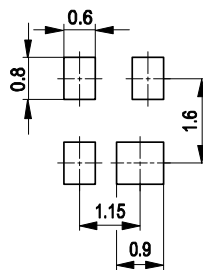
Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel



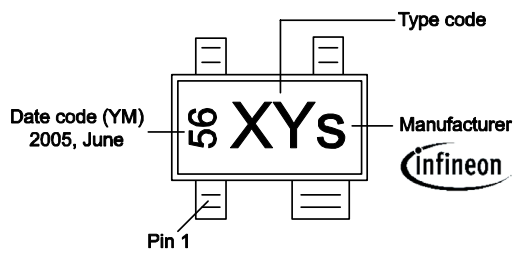
Package Outline



Foot Print

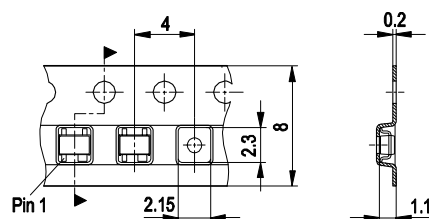


Marking Layout (Example)

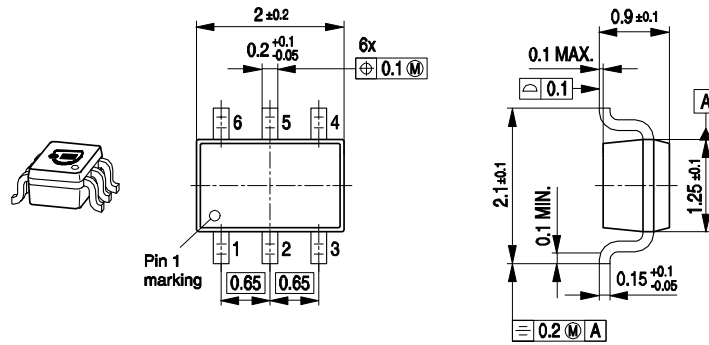


Standard Packing

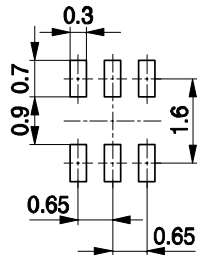
Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 330 mm = 10.000 Pieces/Reel



Package Outline

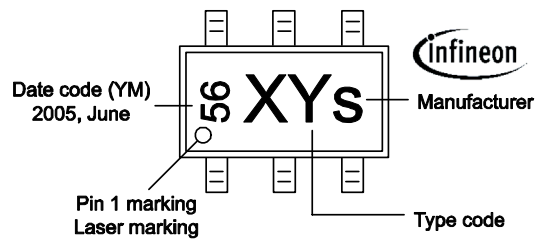


Foot Print



Marking Layout (Example)

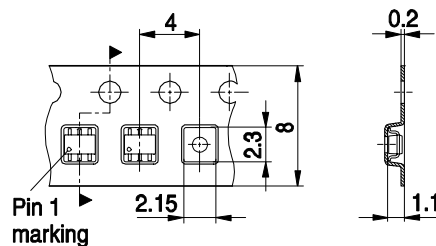
Small variations in positioning of Date code, Type code and Manufacturer are possible.



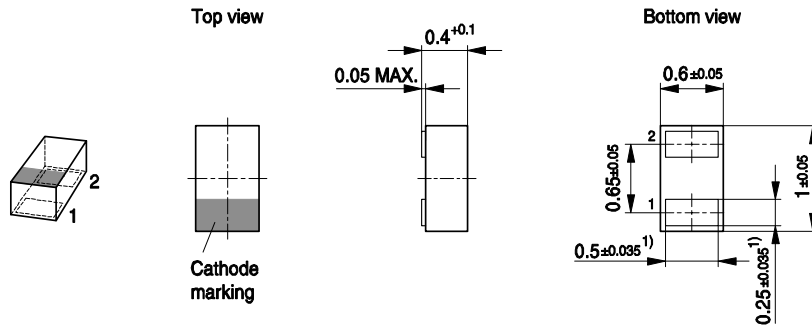
Standard Packing

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.



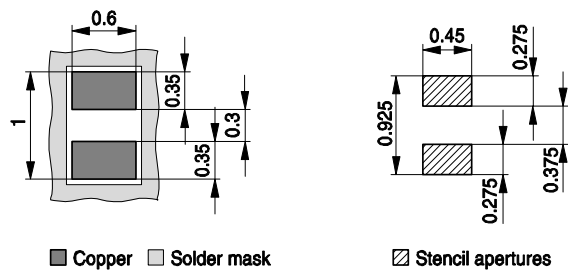
Package Outline



1) Dimension applies to plated terminal

Foot Print

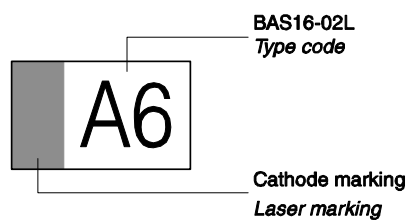
For board assembly information please refer to Infineon website "Packages"



■ Copper □ Solder mask

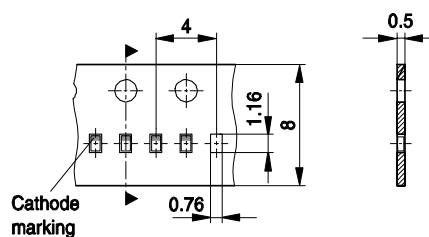
▨ Stencil apertures

Marking Layout (Example)



Standard Packing

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



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