

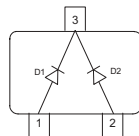
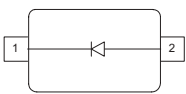
### Silicon Tuning Diode

- Excellent linearity
- High Q hyperabrupt tuning diode
- Low series resistance
- High capacitance ratio
- Designed for low tuning voltage operation for VCO's in mobile communications equipment
- For control elements such as TCXOs and VCXOs
- Pb-free (RoHS compliant) package<sup>1)</sup>
- Qualified according AEC Q101



**BBY57-02L**  
**BBY57-02V**  
**BBY57-02W**

**BBY57-05W**



Type	Package	Configuration	$L_S$ (nH)	Marking
BBY57-02L	TSLP-2	single	0.4	55
BBY57-02V	SC79	single	0.6	5
BBY57-02W	SCD80	single	0.6	55
BBY57-05W	SOT323	common cathode	1.4	D5s

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	$V_R$	10	V
Forward current	$I_F$	20	mA
Operating temperature range	$T_{op}$	-55 ... 125	°C
Storage temperature	$T_{stg}$	-55 ... 150	

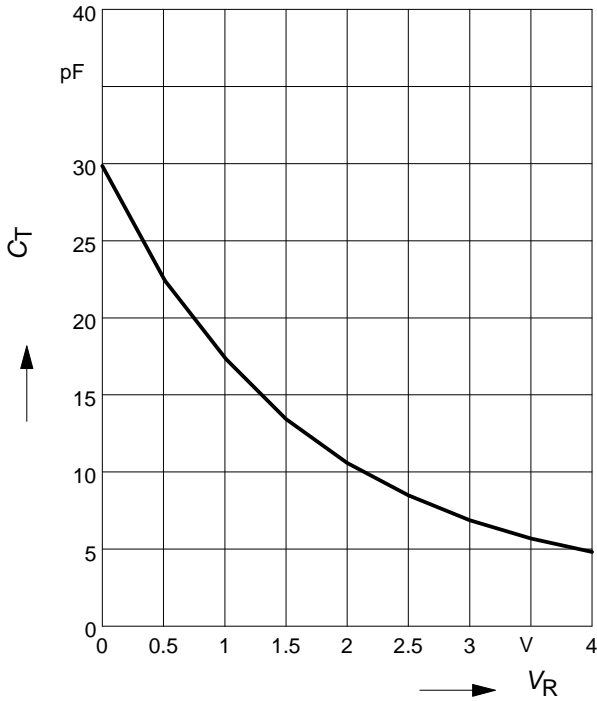
<sup>1)</sup>Pb-containing package may be available upon special request

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Reverse current	$I_R$				nA
$V_R = 8\text{ V}$		-	-	10	
$V_R = 8\text{ V}, T_A = 85^\circ\text{C}$		-	-	100	
<b>AC Characteristics</b>					
Diode capacitance	$C_T$				pF
$V_R = 1\text{ V}, f = 1\text{ MHz}$		16.5	17.5	18.6	
$V_R = 2.5\text{ V}, f = 1\text{ MHz}$		-	9.35	-	
$V_R = 3\text{ V}, f = 1\text{ MHz}$		-	7	-	
$V_R = 4\text{ V}, f = 1\text{ MHz}$		4	4.7	5.5	
Capacitance ratio	$C_{T1}/C_{T3}$	-	2.45	-	
$V_R = 1\text{ V}, V_R = 3\text{ V}, f = 1\text{ MHz}$					
Capacitance ratio	$C_{T1}/C_{T4}$	3	3.7	4.5	
$V_R = 1\text{ V}, V_R = 4\text{ V}, f = 1\text{ MHz}$					
Series resistance	$r_S$				$\Omega$
$V_R = 1\text{ V}, f = 470\text{ MHz}, \text{BBY57-02L}$		-	0.35	-	
$V_R = 1\text{ V}, f = 470\text{ MHz}, \text{all others}$		-	0.3	-	

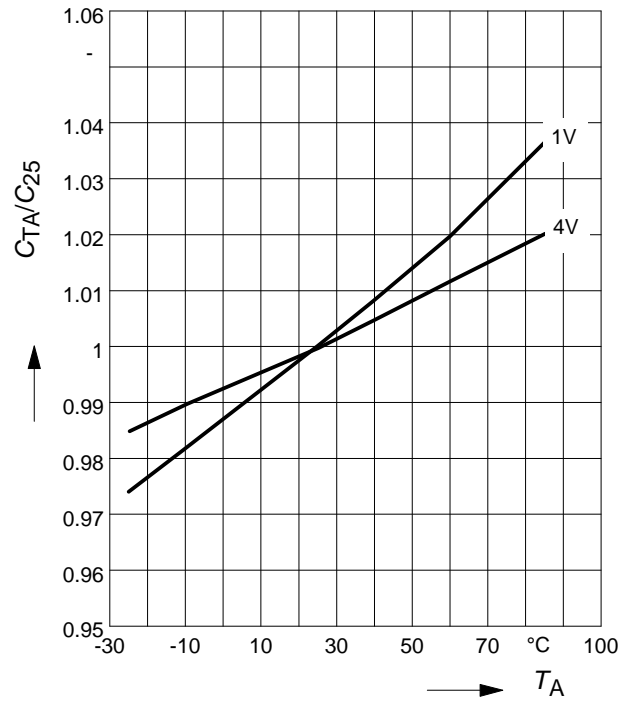
**Diode capacitance  $C_T = f(V_R)$**

$f = 1\text{MHz}$

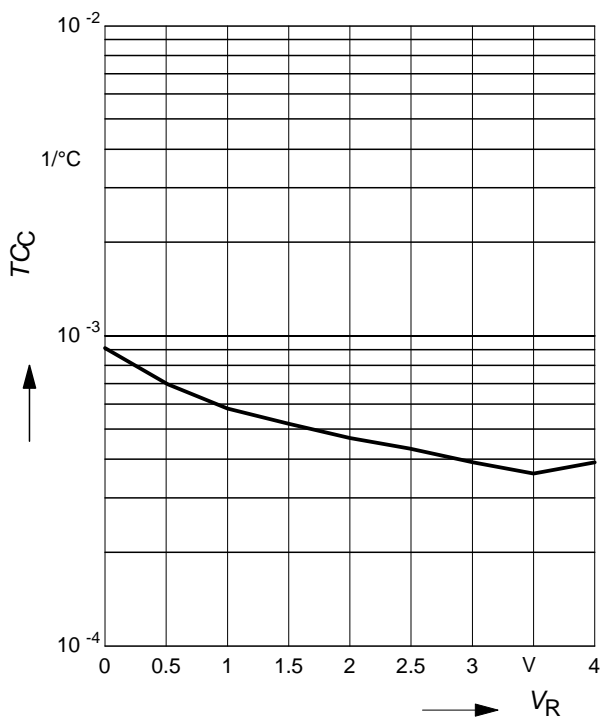


**Normalized diode capacitance**

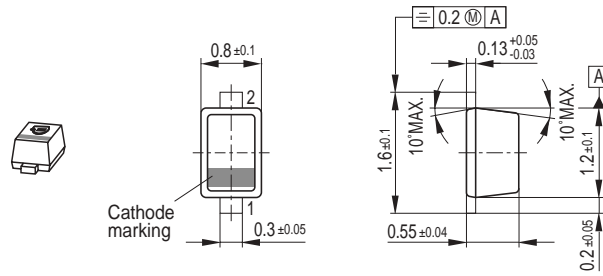
$C_{(T_A)}/C_{(25^\circ\text{C})} = f(T_A); f = 1\text{MHz}$



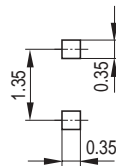
**Temperature coefficient of the diode capacitance  $T_{CC} = f(V_R)$**



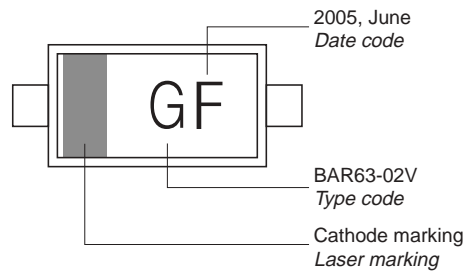
Package Outline



Foot Print

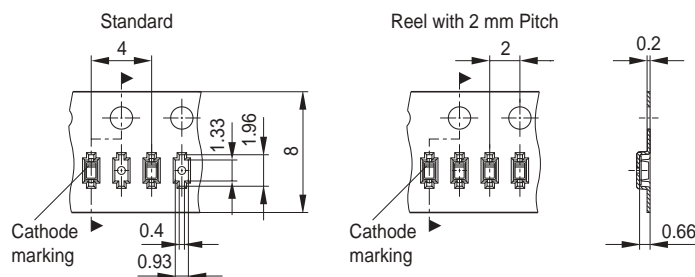


Marking Layout (Example)

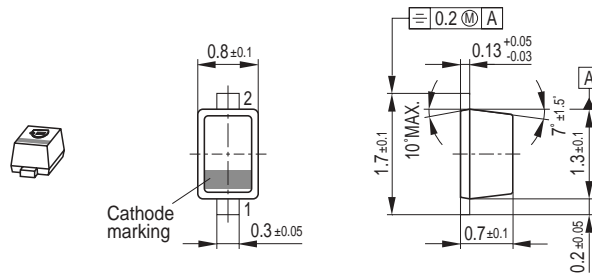


Standard Packing

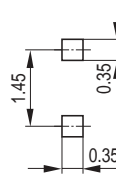
Reel ø180 mm = 3.000 Pieces/Reel  
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)  
 Reel ø330 mm = 10.000 Pieces/Reel



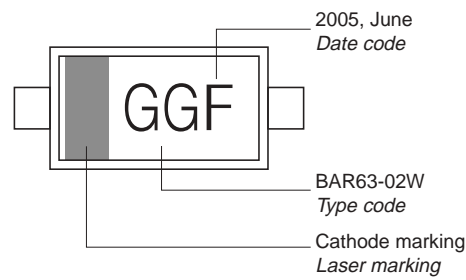
### Package Outline



### Foot Print

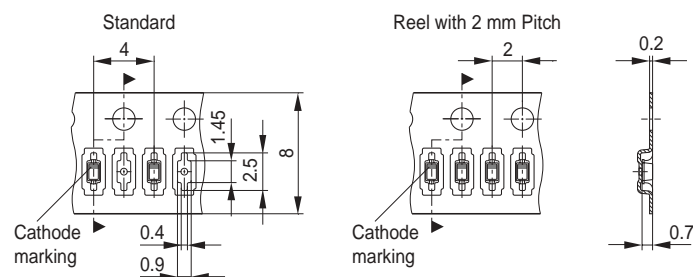


### Marking Layout (Example)



### Standard Packing

Reel  $\varnothing$ 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

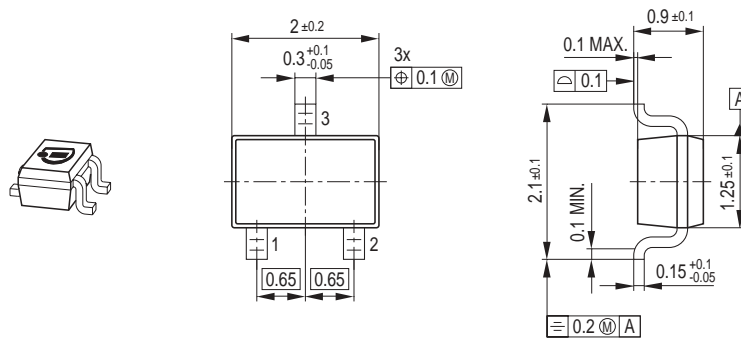


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

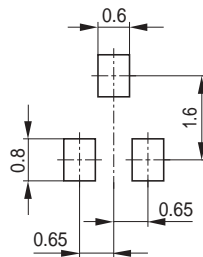
Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y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

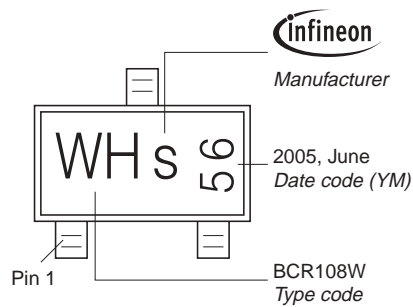
Package Outline



Foot Print

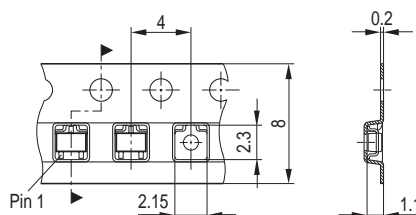


Marking Layout (Example)

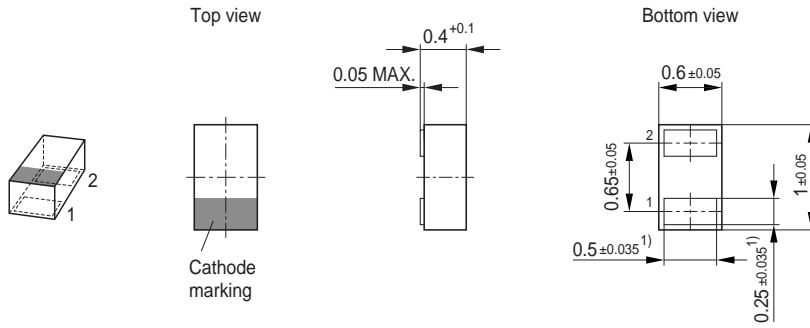


Standard Packing

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



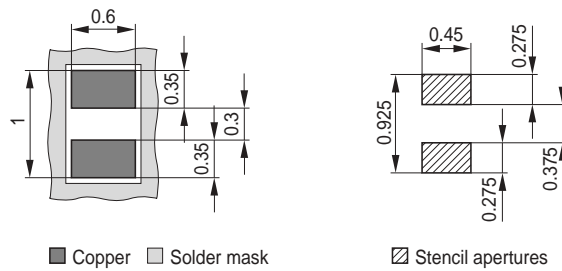
### Package Outline



1) Dimension applies to plated terminal

### Foot Print

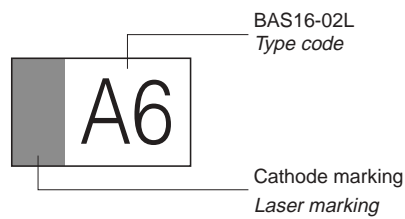
For board assembly information please refer to Infineon website "Packages"



■ Copper □ Solder mask

▨ Stencil apertures

### Marking Layout (Example)

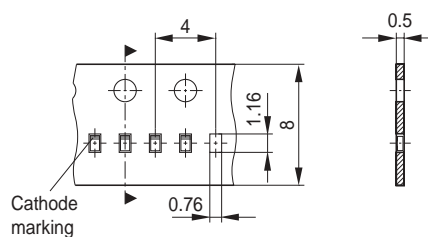


BAS16-02L  
Type code

Cathode marking  
Laser marking

### Standard Packing

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





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