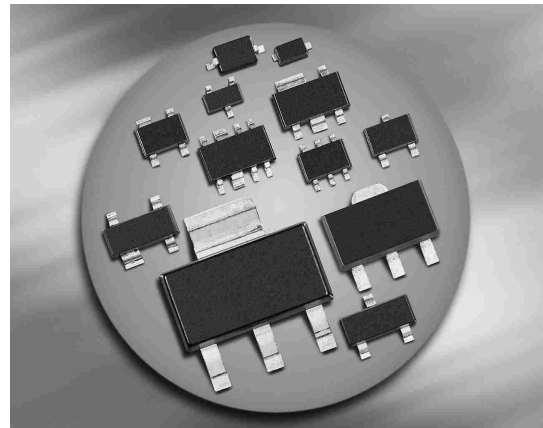
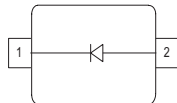


Silicon Tuning Diode

- For VHF TV tuners
- Very high capacitance ratio
- Low series resistance
- Excellent uniformity and matching due to "in-line" matching assembly procedure
- Pb-free (RoHS compliant) package



BB669
BB689
BB689-02V



Type	Package	Configuration	L_S (nH)	Marking
BB669	SOD323	single	1.8	red 1
BB689	SCD80	single	0.6	EE
BB689-02V	SC79	single	0.6	E

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

Parameter	Symbol	Value	Unit
Diode reverse voltage	V_R	30	V
Peak reverse voltage ($R \leq 5\text{k}\Omega$)	V_{RM}	35	
Forward current	I_F	20	mA
Operating temperature range	T_{op}	-55 ... 150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 ... 150	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC Characteristics

Reverse current	I_R				nA
$V_R = 30\text{ V}$		-	-	10	
$V_R = 30\text{ V}, T_A = 85^\circ\text{C}$		-	-	200	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

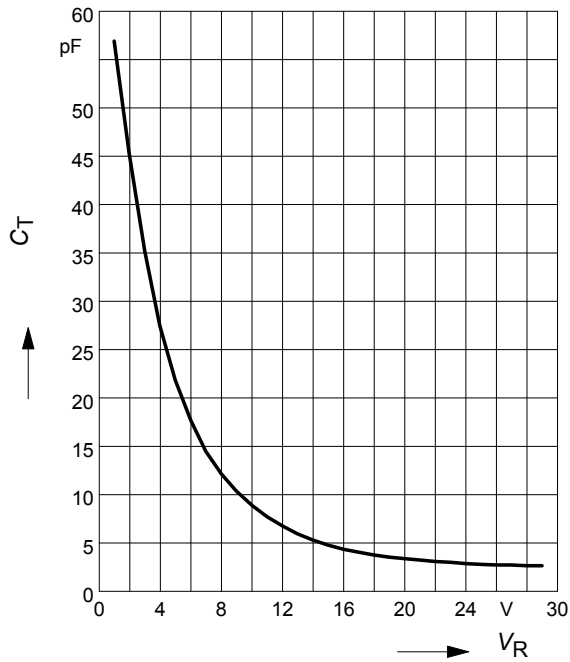
AC Characteristics

Diode capacitance	C_T				pF
$V_R = 1\text{ V}, f = 1\text{ MHz}$		51	56.5	61.5	
$V_R = 2\text{ V}, f = 1\text{ MHz}$		39.6	43.4	47.2	
$V_R = 25\text{ V}, f = 1\text{ MHz}$		2.6	2.8	3	
$V_R = 28\text{ V}, f = 1\text{ MHz}$		2.5	2.7	2.9	
Capacitance ratio	C_{T1}/C_{T28}	18	20.9	23.2	-
$V_R = 1\text{ V}, V_R = 28\text{ V}, f = 1\text{ MHz}$					
Capacitance ratio	C_{T2}/C_{T25}	14.5	15.5	17	
$V_R = 2\text{ V}, V_R = 25\text{ V}, f = 1\text{ MHz}$					
Capacitance matching ¹⁾	$\Delta C_T/C_T$	-	-	2	%
$V_R = 1 \dots 28\text{ V}, f = 1\text{ MHz}, 7\text{ diodes sequence}$					
Series resistance	r_S	-	0.85	1.2	Ω
$V_R = 8\text{ V}, f = 470\text{ MHz}$					
Series inductance	L_S	-	0.6	-	nH

¹For details please refer to Application Note 047

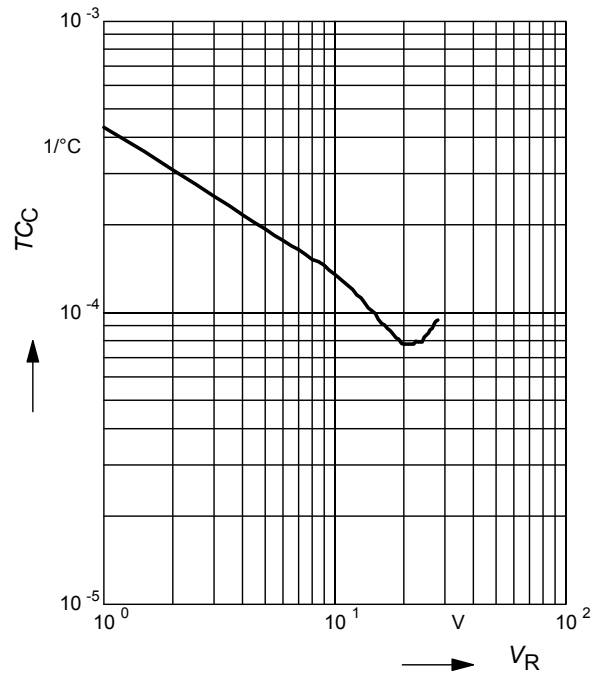
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



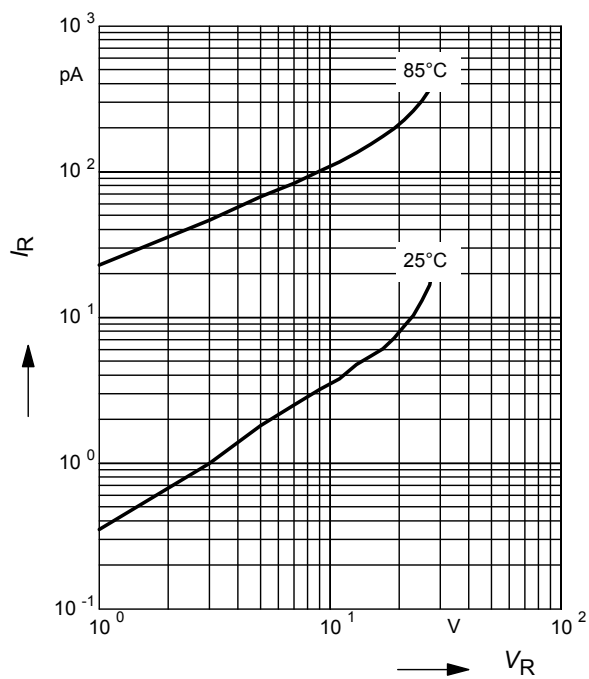
Temperature coefficient of the diode capacitance $T_{CC} = f(V_R)$

$T_{CC} = f(V_R)$

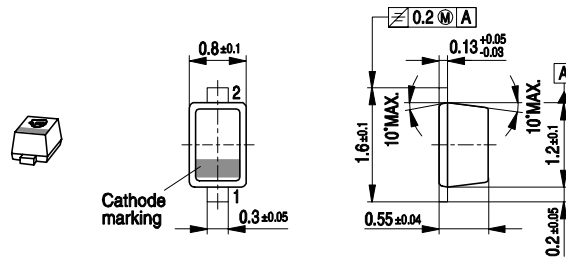


Reverse current $I_R = f(V_R)$

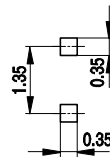
$T_A = \text{Parameter}$



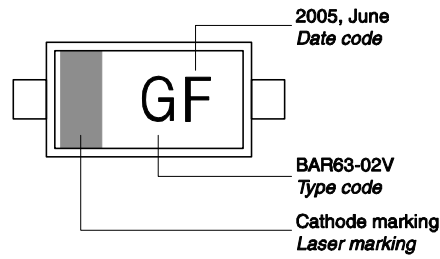
Package Outline



Foot Print

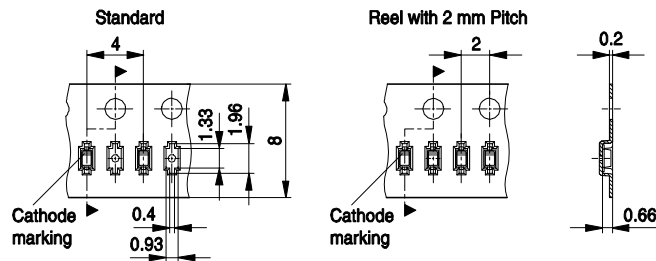


Marking Layout (Example)

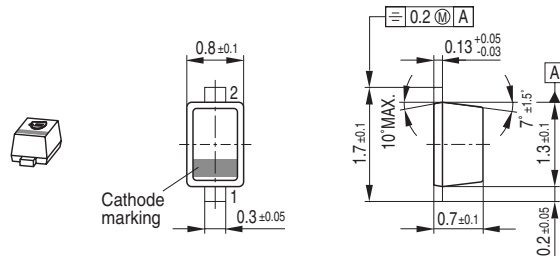


Standard Packing

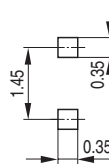
Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Reel \varnothing 180 mm = 8.000 Pieces/Reel (2 mm Pitch)
 Reel \varnothing 330 mm = 10.000 Pieces/Reel



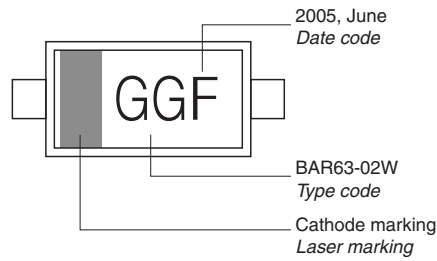
Package Outline



Foot Print

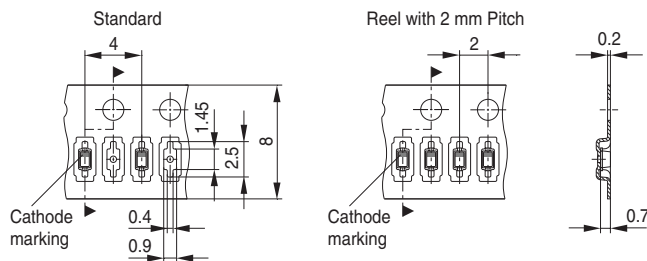


Marking Layout (Example)



Standard Packing

Reel ϕ 180 mm = 3.000 Pieces/Reel
 Reel ϕ 180 mm = 8.000 Pieces/Reel (2 mm Pitch)
 Reel ϕ 330 mm = 10.000 Pieces/Reel

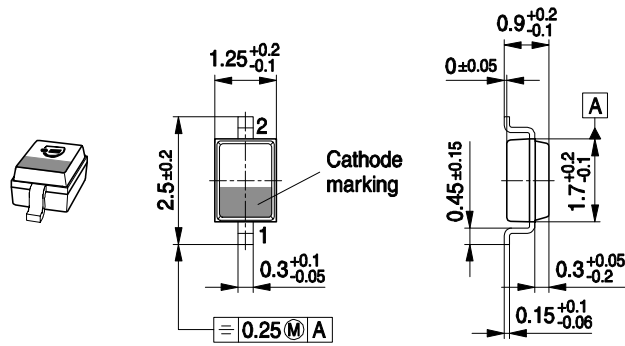


Date Code marking for discrete packages with
one digit (SCD80, SC79, SC75¹⁾) CES-Code

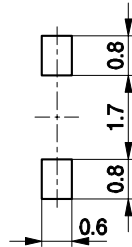
Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y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

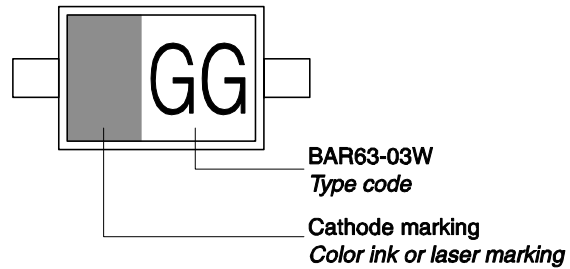
Package Outline



Foot Print

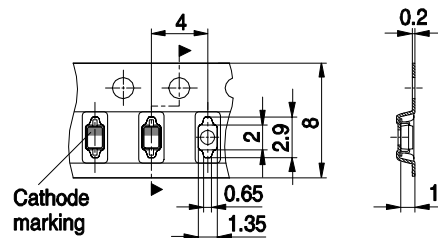


Marking Layout (Example)



Standard Packing

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



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