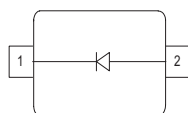


Silicon Tuning Diode

- 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	
$V_R = 30\text{ V}, T_A = 85\text{ }^{\circ}\text{C}$		-	-	200	

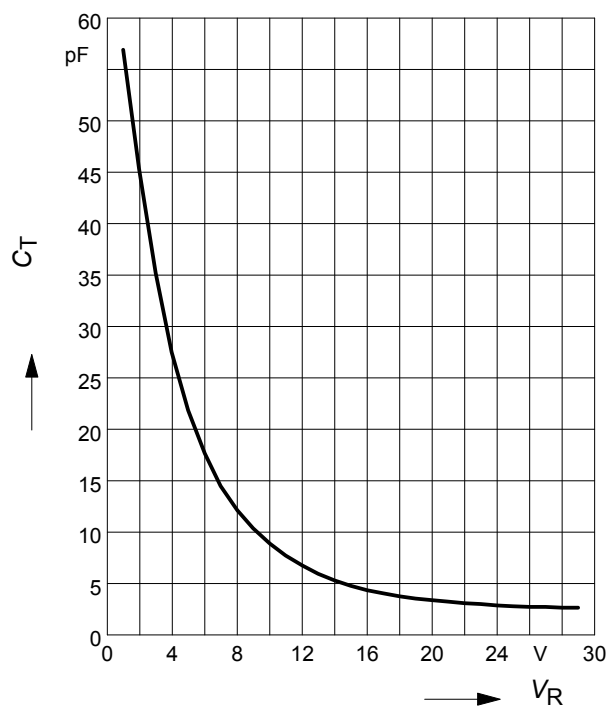
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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

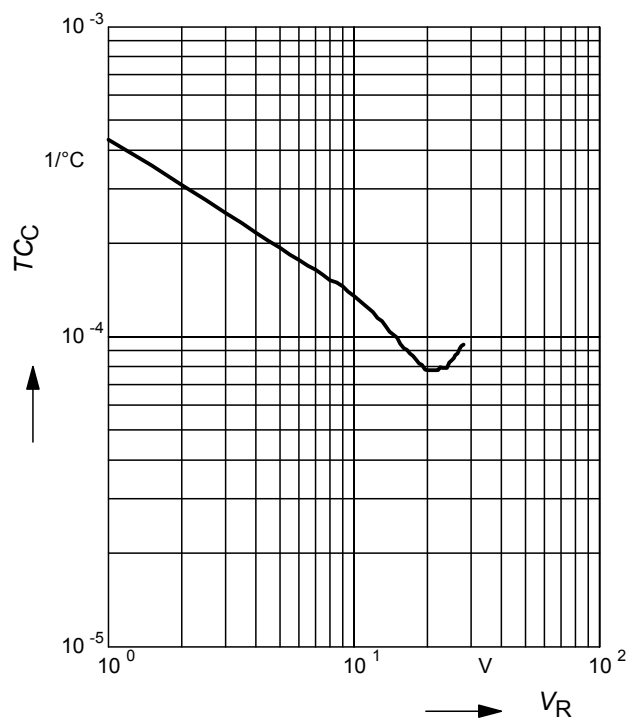
¹For details please refer to Application Note 047

Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$

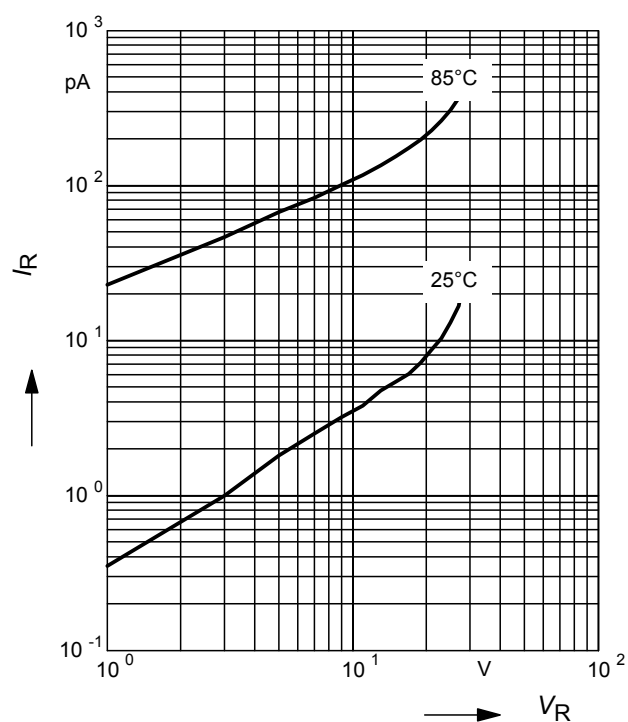


Temperature coefficient of the diode capacitance $T_{CC} = f(V_R)$

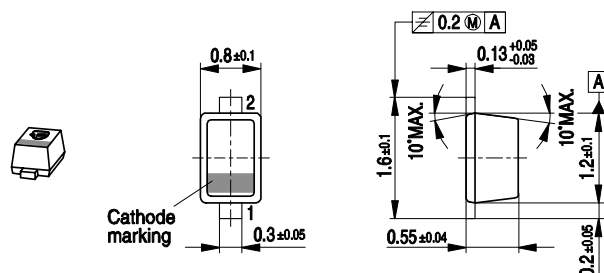


Reverse current $I_R = f(V_R)$

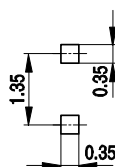
$T_A = \text{Parameter}$



Package Outline



Foot Print

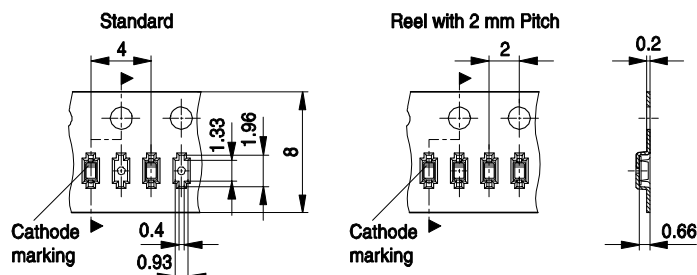


Marking Layout (Example)

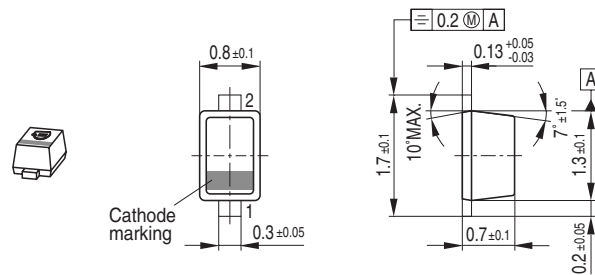


Standard Packing

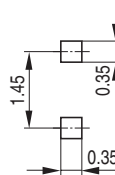
Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø180 mm = 8.000 Pieces/Reel (2 mm Pitch)
 Reel ø330 mm = 10.000 Pieces/Reel



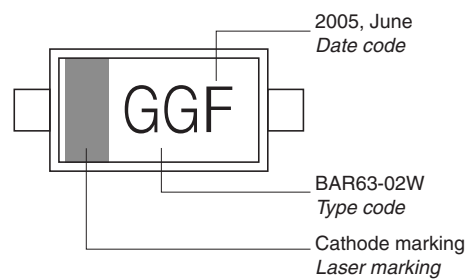
Package Outline



Foot Print

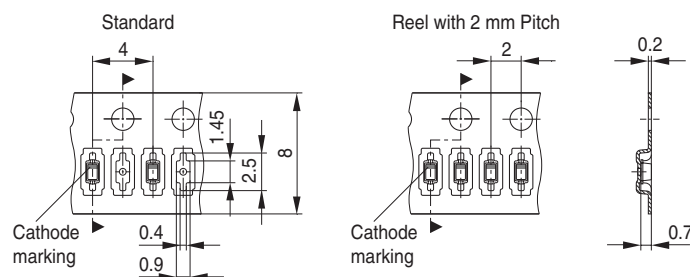


Marking Layout (Example)



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, 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.

Technical drawing of the 025M A component, showing isometric, top, and side views with dimensions.

Isometric View: Shows the component with a cathode marking (indicated by a circle with a dot) and a tab labeled 'A'.

Top View: Dimensions include a width of $1.25^{+0.2}_{-0.1}$, a height of 2.5 ± 0.2 , a central square area of 2 on each side, a bottom tab width of $0.3^{+0.1}_{-0.05}$, and a bottom tab height of 1 . A label **Cathode marking** points to the central area.

Side View: Dimensions include a total height of $0.9^{+0.2}_{-0.1}$, a top flange width of 0 ± 0.05 , a main body width of 0.45 ± 0.15 , a central rectangular area of $1.7^{+0.2}_{-0.1}$ in height, a bottom flange width of $0.3^{+0.05}_{-0.2}$, and a bottom tab width of $0.15^{+0.1}_{-0.06}$. A label **A** points to the central rectangular area.

Label: $\equiv 0.25 \text{ (M) A}$

Technical drawing of a stepped shaft. The shaft has a total length of 1.7 units. It consists of two main sections: a left section with a diameter of 0.6 units and a length of 0.8 units, and a right section with a diameter of 0.8 units and a length of 0.8 units. The drawing includes a centerline and dimension lines indicating these measurements.

BAR63-03W
Type code

Cathode marking
Color ink or laser marking

Technical drawing of a cathode marking. The drawing shows a side view and a cross-section. The side view has a total width of 4, a total height of 8, and a central hole with a diameter of 2.9. The cross-section shows a total width of 0.2 and a central hole with a diameter of 1.35. The text "Cathode marking" is written below the side view.

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