30 V Silicon Varactor Diodes
MSV34,000, SMTD & SMTV Series

AEROFLEX
A passion for performance.

Description

The work horse of varactors these diodes are built tough with fully passivated mesa construction and Aeroflex / Metelics tri-metallization. Featuring a nominal gamma of 0.46 these diodes find application in tunable filters and oscillators up to 18 GHz.

Features

- 0 to 30 Volt tuning voltage
- Tuning ratios up to 4.7 typical
- Screening per MIL-PRF-19500 and MIL-PRF-35834 available

Absolute Maximum Ratings

Parameters	Rating
Reverse Voltage	30 V
Forward Current	100 mA
Power Dissipation	
Chip	250 mW at T_C = 25 °C, derate linearly to zero at T_C = +200 °C
E28, E28X, SOD323, SOT23 & 0805-2	100 mW at T_A = 25 °C, derate linearly to zero at T_A = +150 °C
H20, P55 & T86	100 mW at T_A = 25 °C, derate linearly to zero at T_A = +200 °C
Operating Temperature	
Chip	-65 °C to +200 °C
E28, E28X, SOD323, SOT23 & 0805-2	-65 °C to +150 °C
H20, P55 & T86	-65 °C to +200 °C
Storage Temperature	Same as operating temperature.
Soldering Temperature	
Chip	+320 °C for 10 seconds
Packaged	+260 °C peak per JEDEC J-STD-20C

AEROFLEX
METELICS

Revision Date: 10/24/05

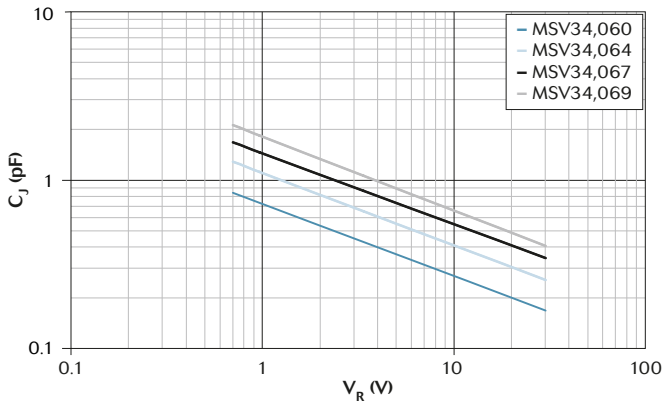
AEROFLEX METELICS

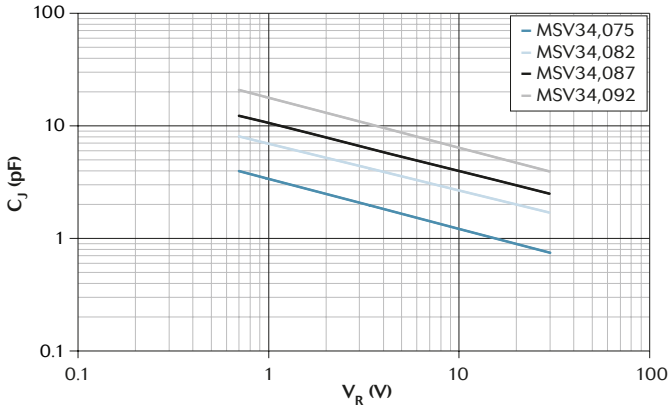
30 V Silicon Varactor Diodes
MSV34,000 Series

Chip
Electrical Specifications, T_A = 25 °C

Model	V_{BR} MIN V	C_J MIN pF	C_J NOM pF	C_J MAX pF	Tuning Ratio MIN	Tuning Ratio TYP	Q MIN	R_S MAX Ω	Outline
MSV34,060	30	0.36	0.4	0.44	3.5	4.0	6,300	1.3	C12
MSV34,064	30	0.54	0.6	0.66	3.5	4.0	5,300	1.0	C12
MSV34,067	30	0.72	0.8	0.88	3.5	4.0	4,500	0.9	C12
MSV34,069	30	0.90	1.0	1.10	4.0	4.7	4,000	0.8	C12
MSV34,075	30	1.62	1.8	1.98	4.0	4.7	3,600	0.5	C12
MSV34,082	30	3.42	3.8	4.18	4.0	4.7	2,700	0.3	C12
MSV34,087	30	5.22	5.8	6.38	4.0	4.7	2,200	0.2	C12
MSV34,092	30	8.82	9.8	10.78	4.0	4.7	2,000	0.2	C22
Test Conditions	I_R = 10 μA	V_R = 4 V F = 1 MHz			V_R = 0 V & V_R = 30 V F = 1 MHz		V_R = 4 V F = 50 MHz	F = 1 GHz	

Typical Performance, Chips





Revision Date: 10/24/05

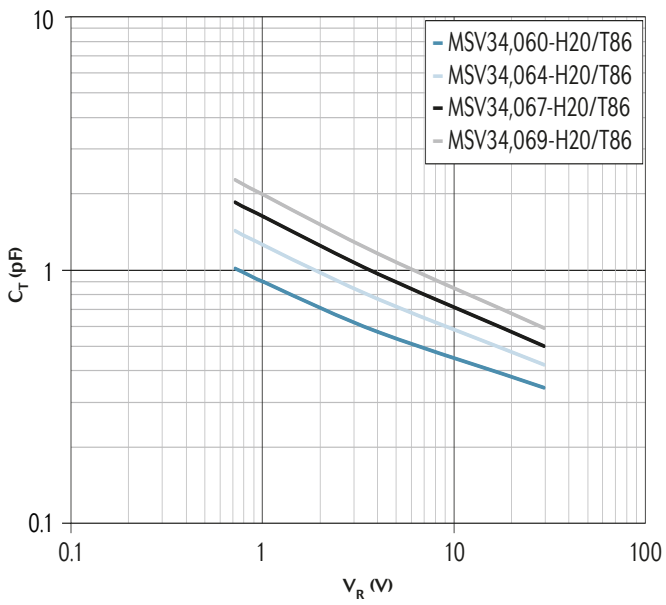
30 V Silicon Varactor Diodes
MSV34,000 Series

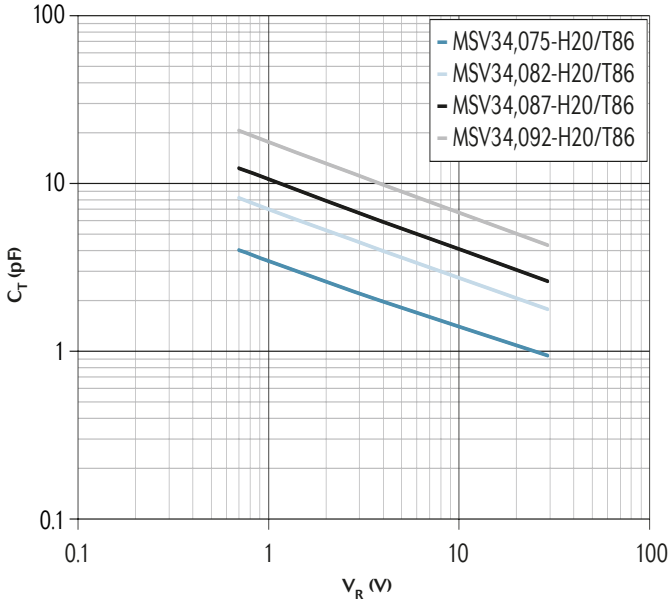
Packaged
Electrical Specifications, T_A = 25 °C

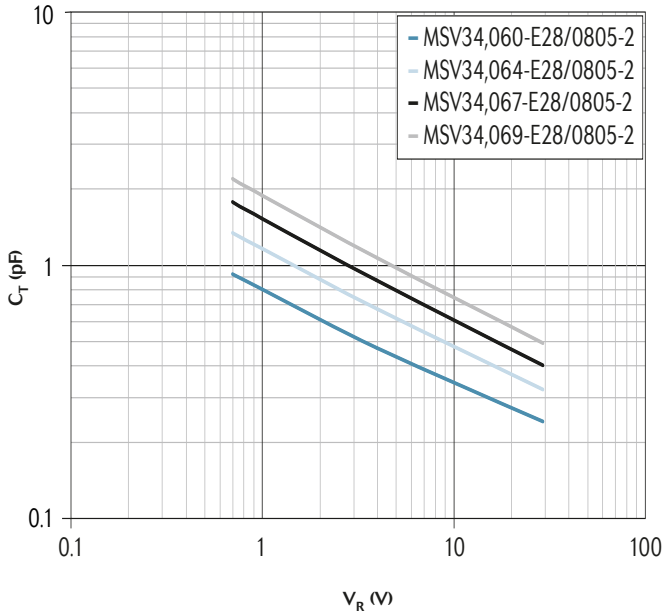
Model	V_{BR} MIN V	C_T MIN pF	C_T NOM pF	C_T MAX pF	Tuning Ratio MIN	Q MIN	C_P TYP pF	L_P TYP nH	Package
MSV34,060-E28 / 28 X	30	0.42	0.48	0.54	2.8	6,300	0.08	0.4	E28 / 28X
MSV34,060-H20	30	0.50	0.58	0.66	2.3	6,300	0.18	0.5	H20
MSV34,060-T86	30	0.50	0.58	0.66	2.3	6,300	0.18	1.0	T86
MSV34,060-0805-2	30	0.41	0.46	0.51	3.0	6,300	0.06	0.4	0805-2
MSV34,060-P55	30	0.45	0.53	0.61	2.5	6,300	0.13	0.35	P55
MSV34,064-E28 / 28 X	30	0.60	0.68	0.76	3.0	5,300	0.08	0.4	E28 / 28X
MSV34,064-H20	30	0.68	0.78	0.88	2.6	5,300	0.18	0.5	H20
MSV34,064-T86	30	0.68	0.78	0.88	2.6	5,300	0.18	1.0	T86
MSV34,064-0805-2	30	0.59	0.66	0.73	3.0	5,300	0.06	0.4	0805-2
MSV34,064-P55	30	0.63	0.73	0.83	2.8	5,300	0.13	0.35	P55
MSV34,067-E28 / 28 X	30	0.78	0.88	0.98	3.1	4,500	0.08	0.4	E28 / 28X
MSV34,067-H20	30	0.86	0.98	1.10	2.7	4,500	0.18	0.5	H20
MSV34,067-T86	30	0.86	0.98	1.10	2.7	4,500	0.18	1.0	T86
MSV34,067-0805-2	30	0.77	0.86	0.95	3.2	4,500	0.06	0.4	0805-2
MSV34,067-P55	30	0.81	0.93	1.05	2.9	4,500	0.13	0.35	P55
MSV34,069-E28 / 28 X	30	0.96	1.08	1.20	4.0	4,000	0.08	0.4	E28 / 28X
MSV34,069-H20	30	1.04	1.18	1.32	3.5	4,000	0.18	0.5	H20
MSV34,069-T86	30	1.04	1.18	1.32	3.5	4,000	0.18	1.0	T86
MSV34,069-0805-2	30	0.95	1.06	1.17	4.1	4,000	0.06	0.4	0805-2
MSV34,069-P55	30	0.99	1.13	1.27	3.8	4,000	0.13	0.35	P55
MSV34,075-E28 / 28 X	30	1.68	1.88	2.08	4.2	3,600	0.08	0.4	E28 / 28X
MSV34,075-H20	30	1.76	1.98	2.20	3.8	3,600	0.18	0.5	H20
MSV34,075-T86	30	1.76	1.98	2.20	3.8	3,600	0.18	1.0	T86
MSV34,075-0805-2	30	1.67	1.86	2.05	4.2	3,600	0.06	0.4	0805-2
MSV34,075-P55	30	1.71	1.93	2.15	4.0	3,600	0.13	0.35	P55
MSV34,082-E28 / 28 X	30	3.48	3.88	4.28	4.3	2,700	0.08	0.4	E28 / 28X
MSV34,082-H20	30	3.56	3.98	4.40	4.1	2,700	0.18	0.5	H20
MSV34,082-T86	30	3.56	3.98	4.40	4.1	2,700	0.18	1.0	T86
MSV34,082-0805-2	30	3.47	3.86	4.25	4.4	2,700	0.06	0.4	0805-2
MSV34,082-P55	30	3.51	3.93	4.35	4.2	2,700	0.13	0.35	P55
MSV34,087-E28 / 28 X	30	5.28	5.88	6.48	4.4	2,200	0.08	0.4	E28 / 28X
MSV34,087-H20	30	5.36	5.98	6.60	4.3	2,200	0.18	0.5	H20
MSV34,087-T86	30	5.36	5.98	6.60	4.3	2,200	0.18	1.0	T86
MSV34,087-0805-2	30	5.27	5.86	6.45	4.4	2,200	0.06	0.4	0805-2
MSV34,087-P55	30	5.31	5.93	6.55	4.3	2,200	0.13	0.35	P55
MSV34,092-E28 / 28 X	30	8.88	9.88	10.88	4.4	2,000	0.08	0.4	E28 / 28X
MSV34,092-H20	30	8.96	9.98	11.00	4.3	2,000	0.18	0.5	H20
MSV34,092-T86	30	8.96	9.98	11.00	4.3	2,000	0.18	1.0	T86
MSV34,092-0805-2	30	8.87	9.86	10.85	4.4	2,000	0.06	0.4	0805-2
MSV34,092-P55	30	8.91	9.93	10.95	4.3	2,000	0.13	0.35	P55
Test Conditions	I_R = 10 µA	V_R = 4 V F = 1 MHz			V_R = 0 V & V_R = 30 V F = 1 MHz	V_R = 4 V F = 50 MHz			

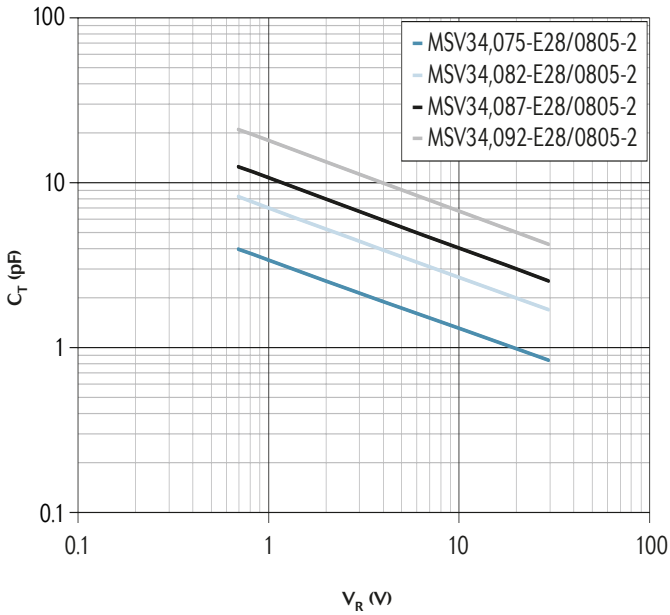
30 V Silicon Varactor Diodes
MSV34,000 Series

Typical Performance, Packaged



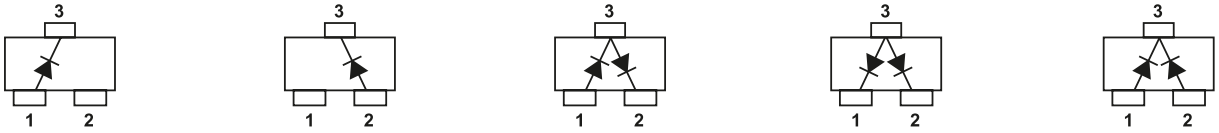






30 V Silicon Varactor Diodes
SMTD & SMTV Series

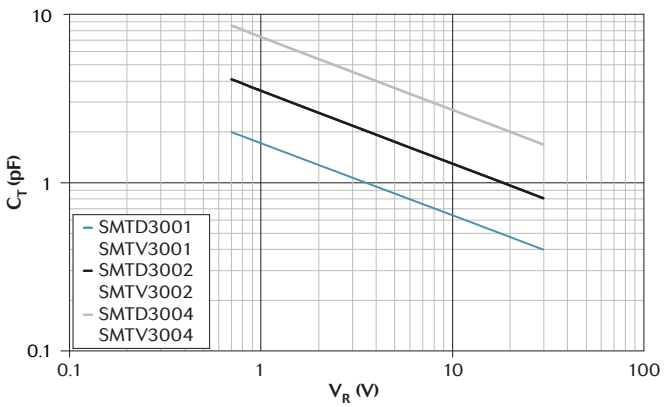
Configuration Codes

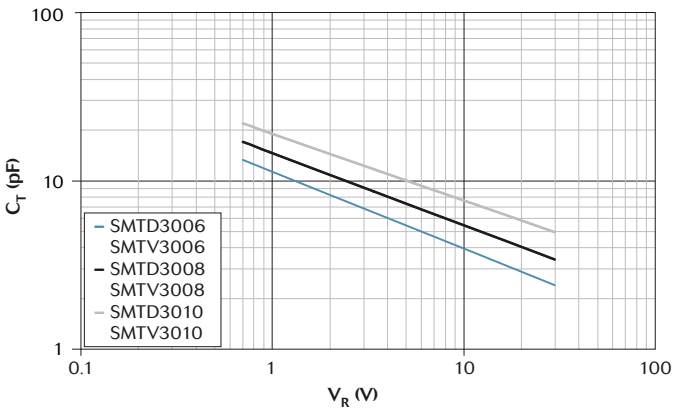


Plastic Packaged
Electrical Specifications, T_A = 25 °C

Model	Configuration	C_T MIN pF	C_T NOM pF	C_T MAX pF	Tuning Ratio MIN	Q MIN	Package
SMTV3001-SOT23	-0S, 1S, 2SF, 3CA, 4CC	0.8	1.0	1.2	3.5	3,000	SOT23
SMTV3002-SOT23	-0S, 1S, 2SF, 3CA, 4CC	1.6	2.0	2.4	3.6	2,800	SOT23
SMTV3004-SOT23	-0S, 1S, 2SF, 3CA, 4CC	3.2	4.0	4.8	4.2	2,400	SOT23
SMTV3006-SOT23	-0S, 1S, 2SF, 3CA, 4CC	4.8	6.0	7.2	4.3	2,100	SOT23
SMTV3008-SOT23	-0S, 1S, 2SF, 3CA, 4CC	6.4	8.0	9.6	4.3	1,800	SOT23
SMTV3010-SOT23	-0S, 1S, 2SF, 3CA, 4CC	8.0	10.0	12.0	4.4	1,600	SOT23
SMTD3001-SOD323	- - -	0.8	1.0	1.2	3.5	3,000	SOD323
SMTD3002-SOD323	- - -	1.6	2.0	2.4	3.6	2,800	SOD323
SMTD3004-SOD323	- - -	3.2	4.0	4.8	4.2	2,400	SOD323
SMTD3006-SOD323	- - -	4.8	6.0	7.2	4.3	2,100	SOD323
SMTD3008-SOD323	- - -	6.4	8.0	9.6	4.3	1,800	SOD323
SMTD3010-SOD323	- - -	8.0	10.0	12.0	4.4	1,600	SOD323
Test Conditions		V_R = 4 V F = 1 MHz			V_R = 0 V V_R = 30 V F = 1 MHz	V_R = 4 V F = 50 MHz	

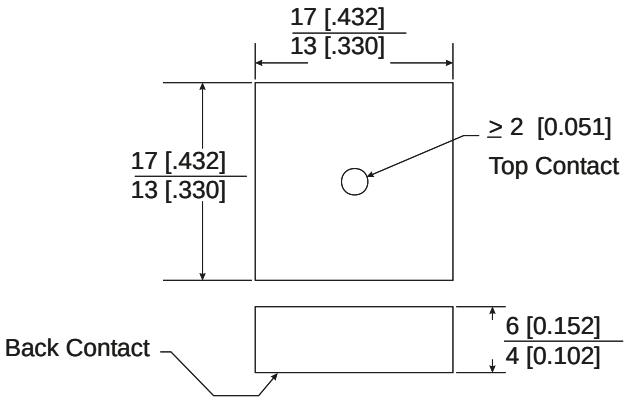
Typical Performance, Plastic Packaged



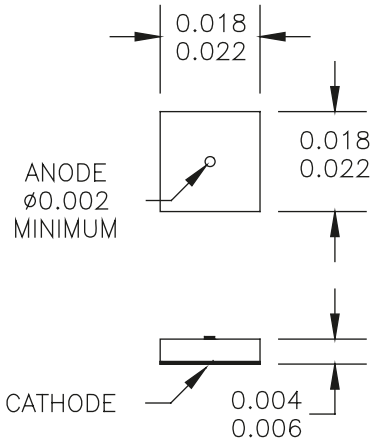


Outline Drawings

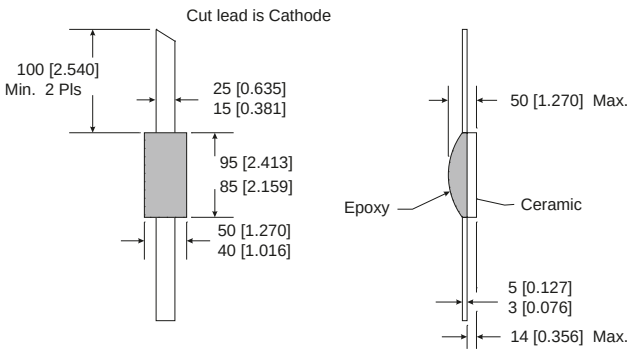
C12



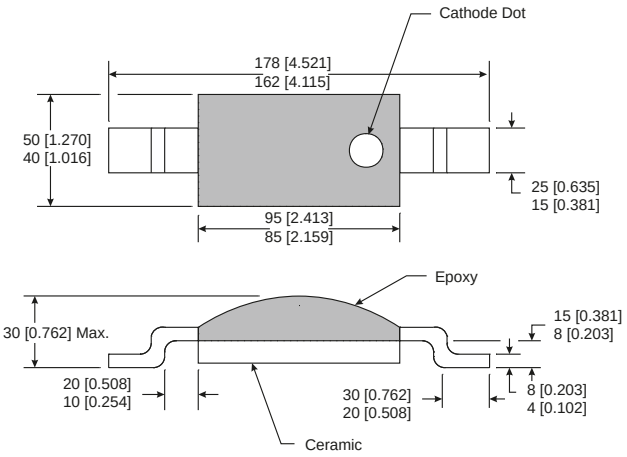
C22



E28
(non-hermetic)



E28X
(non-hermetic)



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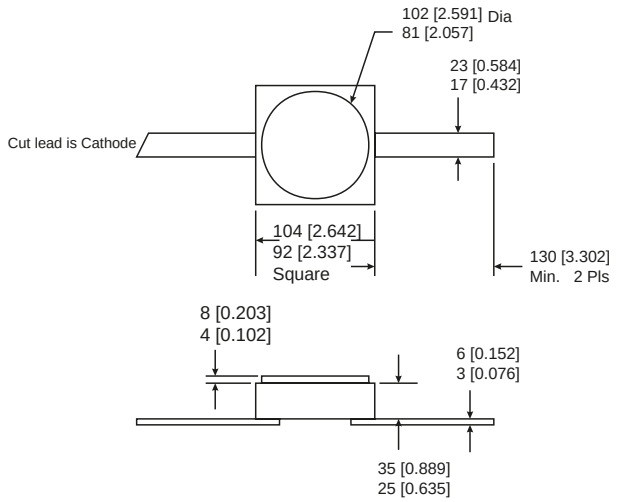
Outline Drawings (Continued)

H20
(hermetic)



P55
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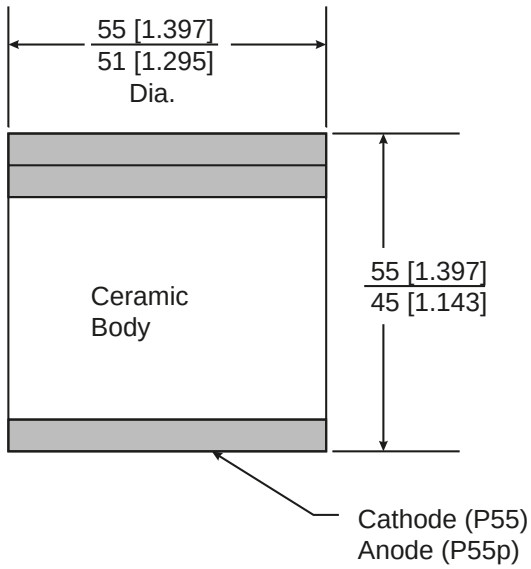

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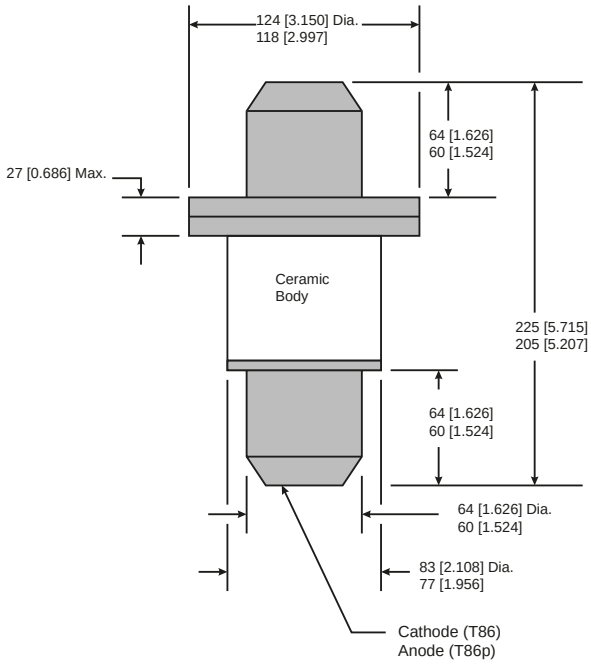

0805-02
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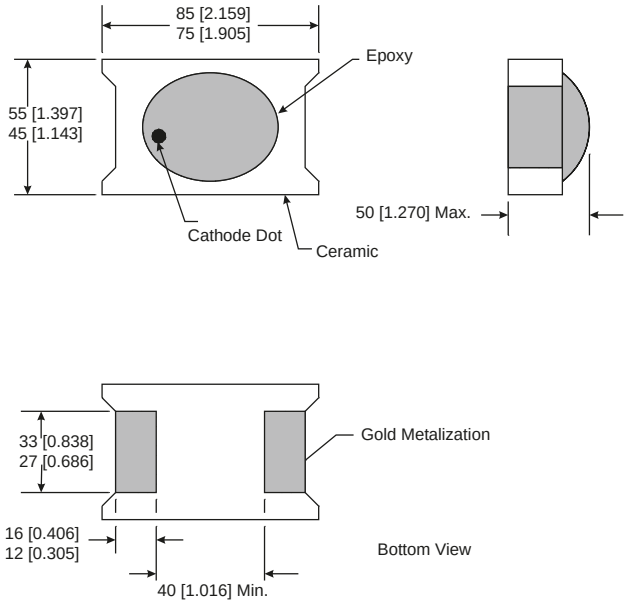

30 V Silicon Varactor Diodes
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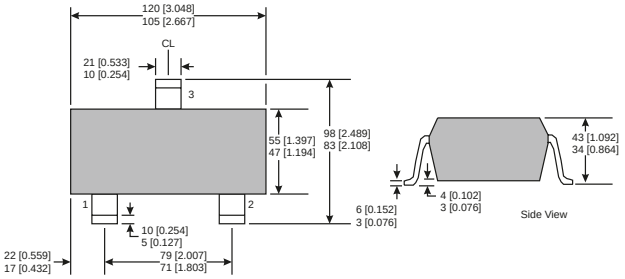
Outline Drawings (Continued)

SOT23
(non-hermetic)



SOD323
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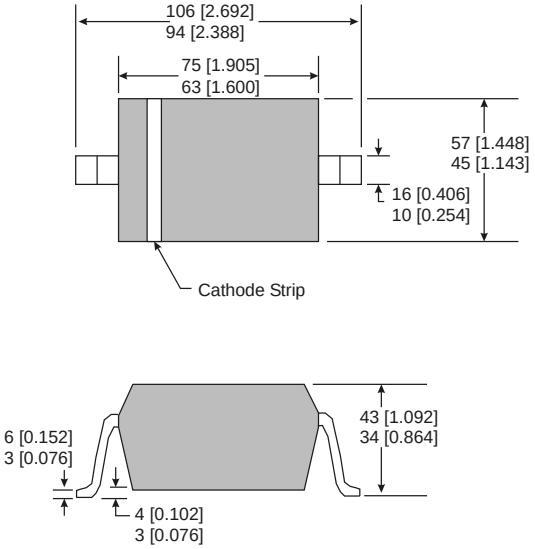

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A passion for performance.

Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.