

SMD Zener Diode

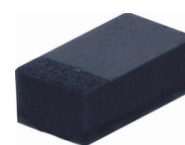


SMD Diodes Specialist

CZRQR52C2 Thru CZRQR52C39 (RoHS Device)

Voltage 2 to 39 Volts

Power 125 mWatts

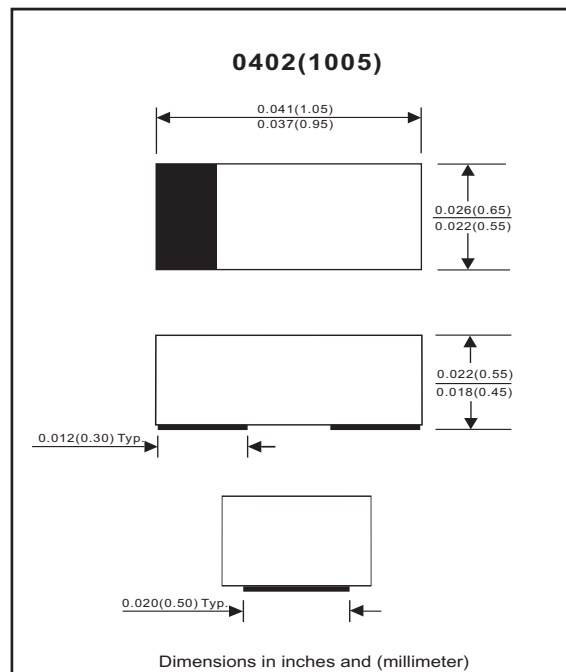


Features

- 125mW Power Dissipation.
- High Voltages from 2 ~ 39 V.
- Designed for mounting on small surface.
- Extremely thin/leadless package.
- Pb free product.

Mechanical data

- Case: 0402(1005)Standard package
Molded plastic.
- Terminals: Gold plated, solderable per
MIL-STD-750,method 2026.
- Polarity: Indicated by cathode band.
- Weight: 0.001 gram(approx.).



Maximum Rating AND Electrical Characteristics

Parameter	Symbol	Value	Unit
Maximum Forward Voltage Drop at $I_F = 10 \text{ mA}$	V_F	0.9	V
Maximum Power Dissipation at 25°C	P_D	125	mW
Forward current , surge peak 8.3 ms single half sine-wave superimposed on rate load(JEDEC method)	I_{FSM}	2.0	A
Peak ESD voltage capability (IEC 61000-4-2)	V_{PV}	8	kV
Operating Junction and Storage Temperature Range	T_J	-55 to +125	$^\circ\text{C}$

Electrical Characteristics (TA=25°C)

Part Number	Marking Code	Zener Voltage			Operating resistance		Rising operating Resistance		Reverse current	
		V _Z (V)			ZZT(Ohm)		ZZK(Ohm)		IR(μA)	
		Min	Max	I _Z (mA)	Max	I _Z (mA)	Max	I _Z (mA)	Max	V _R (V)
CZRQR 52C2	Z0	1.90	2.10	5	100	5	600	1	100	1
CZRQR 52C2V2	Z1	2.09	2.31	5	100	5	600	1	100	1
CZRQR 52C2V4	Z2	2.28	2.52	5	85	5	600	1	100	1
CZRQR 52C2V7	Z3	2.57	2.84	5	83	5	500	1	75	1
CZRQR 52C3	Z4	2.85	3.15	5	95	5	500	1	50	1
CZRQR 52C3V3	Z5	3.14	3.47	5	95	5	500	1	25	1
CZRQR 52C3V6	Z6	3.42	3.78	5	95	5	500	1	15	1
CZRQR 52C3V9	Z7	3.71	4.10	5	95	5	500	1	10	1
CZRQR 52C4V3	Z8	4.09	4.52	5	95	5	500	1	5	1
CZRQR 52C4V7	Z9	4.47	4.94	5	78	5	500	1	5	2
CZRQR 52C5V1	ZA	4.85	5.36	5	60	5	480	1	0.1	0.8
CZRQR 52C5V6	ZB	5.32	5.88	5	40	5	400	1	0.1	1
CZRQR 52C6V2	ZC	5.89	6.51	5	10	5	200	1	0.1	2
CZRQR 52C6V8	ZE	6.46	7.14	5	8	5	150	1	0.1	3
CZRQR 52C7V5	ZF	7.13	7.88	5	7	5	50	1	0.1	5
CZRQR 52C8V2	ZG	7.79	8.61	5	7	5	50	1	0.1	6
CZRQR 52C9V1	ZH	8.65	9.56	5	10	5	50	1	0.1	7
CZRQR 52C10	ZJ	9.50	10.50	5	15	5	70	1	0.1	7.5
CZRQR 52C11	ZK	10.45	11.55	5	20	5	70	1	0.1	8.5
CZRQR 52C12	ZM	11.40	12.60	5	20	5	90	1	0.1	9
CZRQR 52C13	ZN	12.35	13.65	5	25	5	110	1	0.1	10
CZRQR 52C15	ZP	14.25	15.75	5	30	5	110	1	0.1	11
CZRQR 52C16	ZQ	15.20	16.80	5	40	5	170	1	0.1	12
CZRQR 52C18	ZR	17.10	18.90	5	50	5	170	1	0.1	14
CZRQR 52C20	ZS	19.00	21.00	5	50	5	220	1	0.1	15
CZRQR 52C22	ZT	20.90	23.10	5	55	5	220	1	0.1	17
CZRQR 52C24	ZU	22.80	25.20	5	80	5	220	1	0.1	18
CZRQR 52C27	ZV	25.65	28.35	5	80	5	250	1	0.1	20
CZRQR 52C30	ZW	28.50	31.50	5	80	5	250	1	0.1	23
CZRQR 52C33	ZX	31.35	34.65	5	80	5	250	1	0.1	25
CZRQR 52C36	ZY	34.20	37.80	5	90	5	250	1	0.1	27
CZRQR 52C39	ZZ	37.05	40.95	5	90	5	300	1	0.1	29

RATING AND CHARACTERISTIC CURVES (CZRQR52C2 Thru CZRQR52C39)

Fig.1 TEMPERATURE COEFFICIENTS

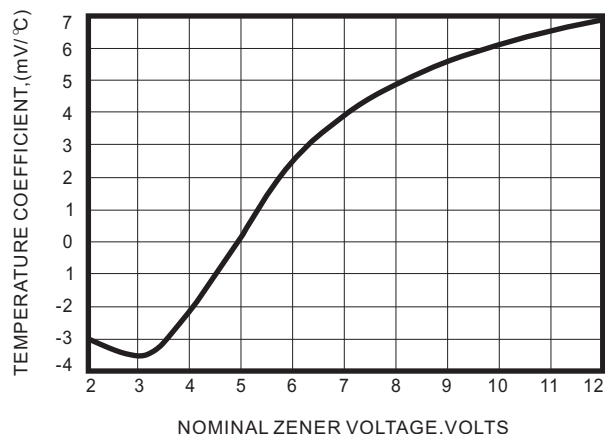


Fig.2 TEMPERATURE COEFFICIENTS

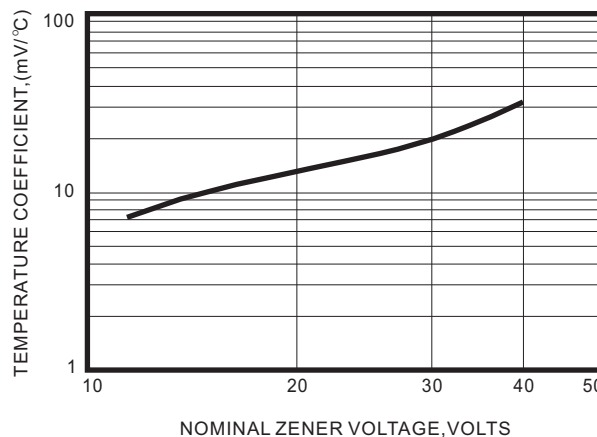


Fig.3 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

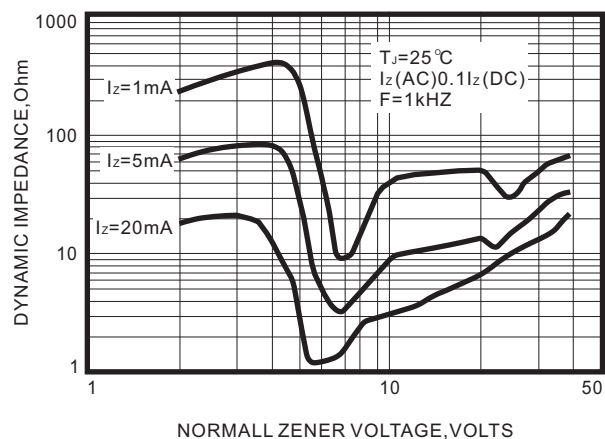


Fig.4 TYPICAL FORWARD VOLTAGE

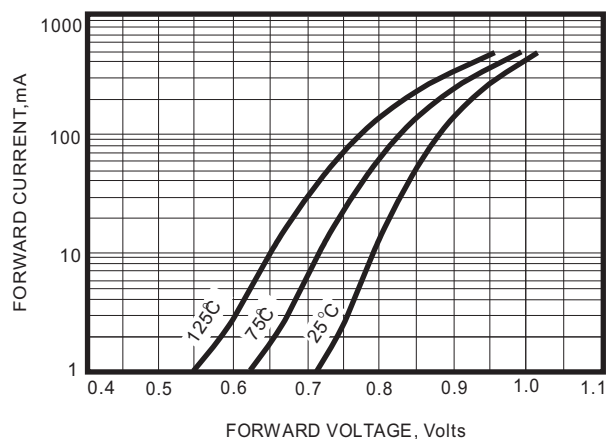


Fig.5 TYPICAL LEAKAGE CURRENT

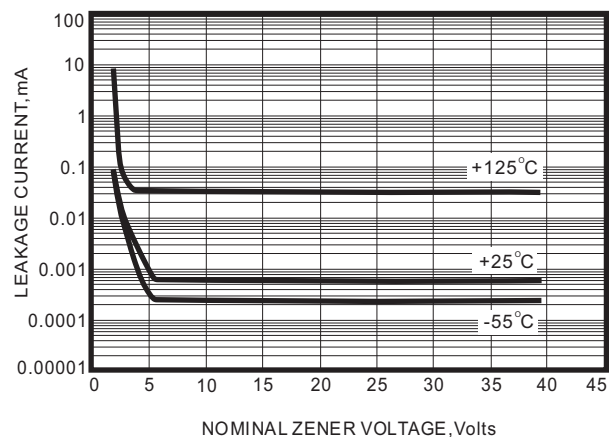
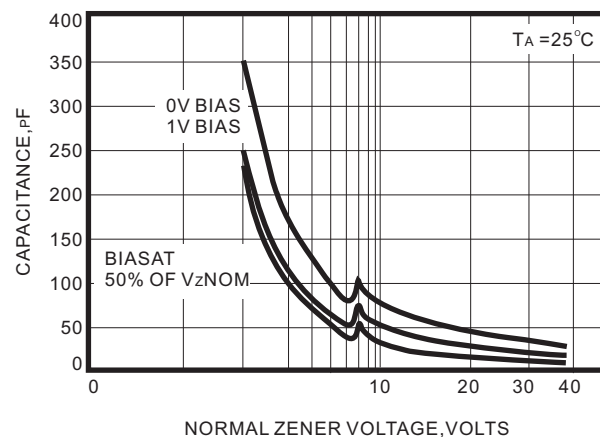


Fig.6 TYPICAL CAPACITANCE



RATING AND CHARACTERISTIC CURVES (CZRQR52C2 Thru CZRQR52C39)

Fig.7 ZENER VOLTAGE VERSUS ZENER CURRENT

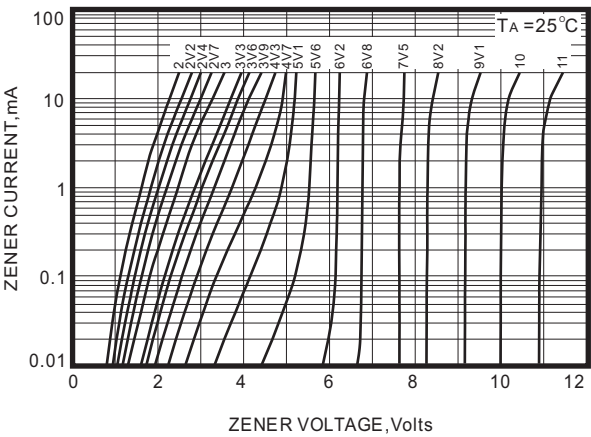


Fig.8 ZENER VOLTAGE VERSUS ZENER CURRENT

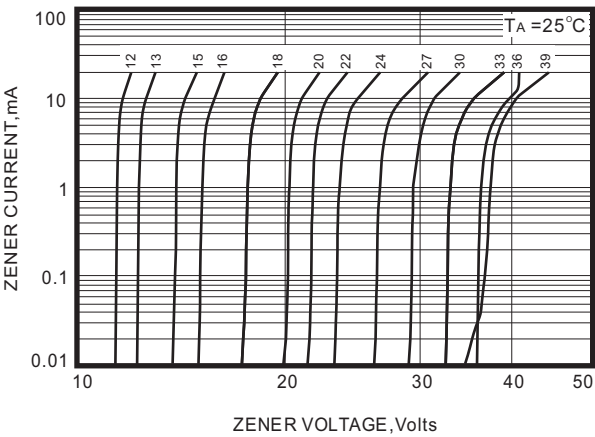
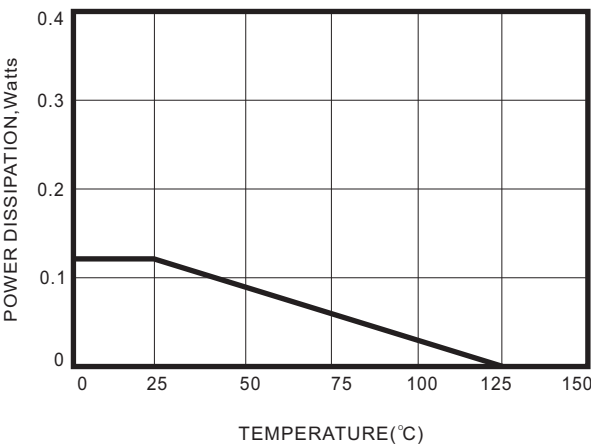
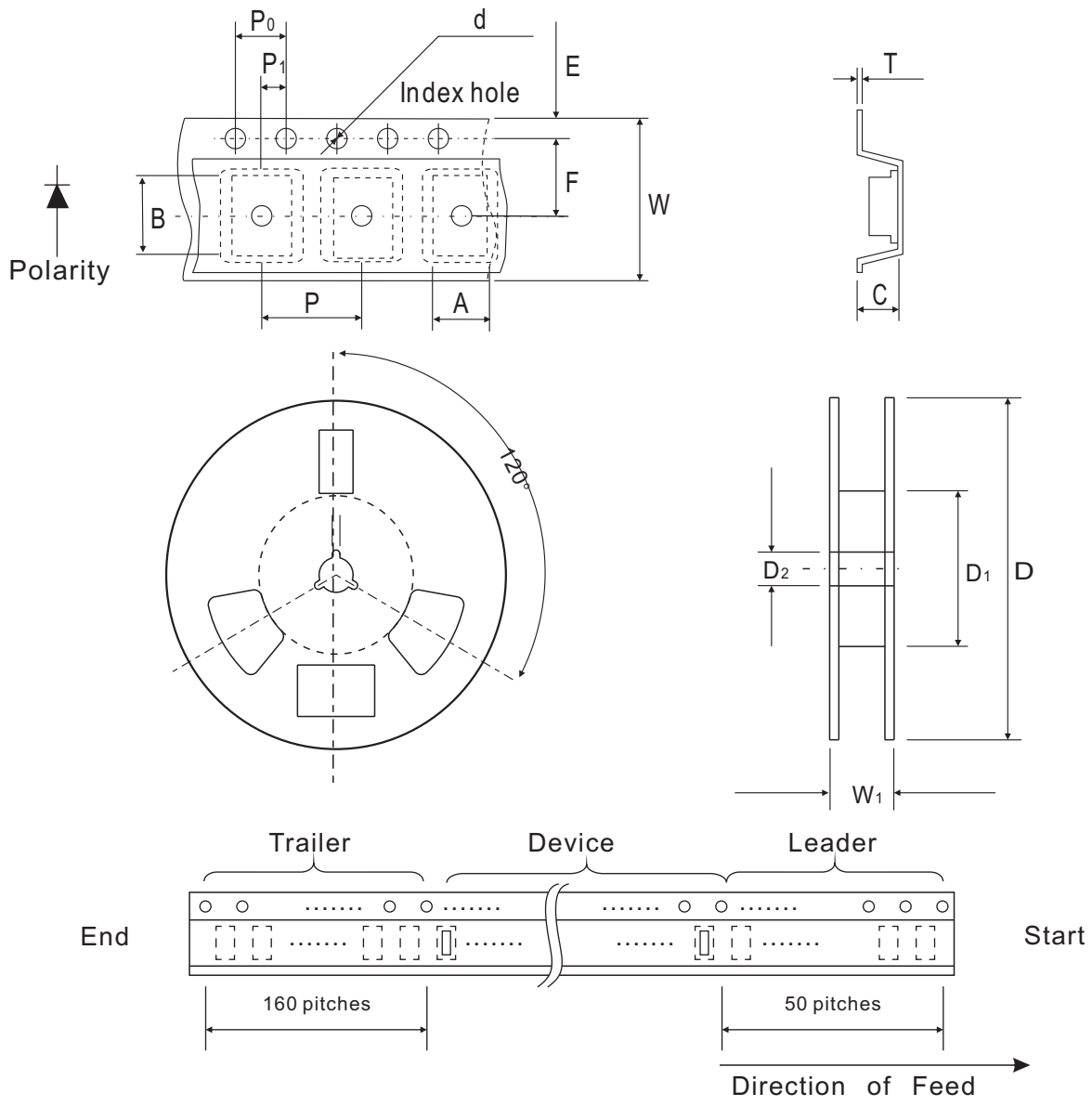


Fig.9 STEADY STATE POWER DERATING



Reel Taping Specification

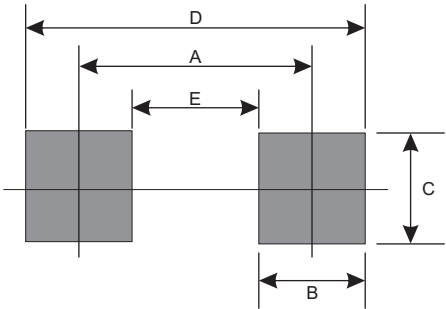


QR/0402	SYMBOL	A	B	C	d	D	D ₁	D ₂
	(mm)	0.75 ± 0.10	1.15 ± 0.10	0.60 ± 0.10	1.55 ± 0.10	178 ± 1	60.0 MIN.	13.0 ± 0.20
	(inch)	0.030 ± 0.004	0.045 ± 0.004	0.024 ± 0.004	0.061 ± 0.004	7.008 ± 0.04	2.362 MIN.	0.512 ± 0.008

QR/0402	SYMBOL	E	F	P	P ₀	P ₁	T	W	W ₁
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	0.22 ± 0.05	8.00 ± 0.20	13.5 MAX.
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.009 ± 0.002	0.315 ± 0.008	0.531 MAX.

Suggested PAD Layout

SIZE	QR/0402	
	(mm)	(inch)
A	0.750	0.030
B	0.500	0.020
C	0.700	0.028
D	1.250	0.049
E	0.250	0.010



Standard Package

Case Type	Qty per Reel	Reel Size
	(Pcs)	(inch)
QR/0402	5000	7