TAK CHEONG ®

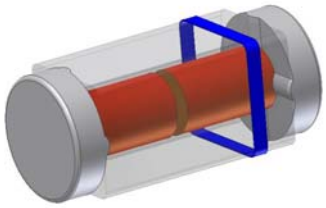
SEMICONDUCTOR

500 mW QUADRO Mini-MELF
Hermetically Sealed Glass Zener Voltage Regulators

Absolute Maximum Ratings T_A = 25°C unless otherwise noted

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +175	°C
Operating Junction Temperature	+175	°C

These ratings are limiting values above which the serviceability of the diode may be impaired.



Cathode Band Color: Blue

Specification Features:

- Zener Voltage Range 2.0 to 75 Volts
- Quadro mini-MELF Package
- Surface Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All External Surfaces Are Corrosion Resistant And Termianls are readily solderable
- RoHS Compliant
- Matte Tin (Sn) Terminal Finish
- Color Band Indicates Negative Polarity

ELECTRICAL SYMBOL

Electrical Characteristics T_A = 25°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω) Max	I_{ZK} (mA)	Z_{ZK} @ I_{ZK} (Ω) Max	I_R @ V_R (μA) Max	V_R (Volts)
	Min	Max						
TCBZT55C 2V0	1.88	2.11	5	100	1	600	100	1
TCBZT55C 2V2	2.08	2.33	5	100	1	600	100	1
TCBZT55C 2V4	2.28	2.56	5	85	1	600	50	1
TCBZT55C 2V7	2.51	2.89	5	85	1	600	10	1
TCBZT55C 3V0	2.8	3.2	5	85	1	600	4	1
TCBZT55C 3V3	3.1	3.5	5	85	1	600	2	1
TCBZT55C 3V6	3.4	3.8	5	85	1	600	2	1
TCBZT55C 3V9	3.7	4.1	5	85	1	600	2	1
TCBZT55C 4V3	4	4.6	5	75	1	600	1	1
TCBZT55C 4V7	4.4	5	5	60	1	600	0.5	1
TCBZT55C 5V1	4.8	5.4	5	35	1	550	0.1	1
TCBZT55C 5V6	5.2	6	5	25	1	450	0.1	1
TCBZT55C 6V2	5.8	6.6	5	10	1	200	0.1	2
TCBZT55C 6V8	6.4	7.2	5	8	1	150	0.1	3
TCBZT55C 7V5	7	7.9	5	7	1	50	0.1	5
TCBZT55C 8V2	7.7	8.7	5	7	1	50	0.1	6.2
TCBZT55C 9V1	8.5	9.6	5	10	1	50	0.1	6.8
TCBZT55C 10	9.4	10.6	5	15	1	70	0.1	7.5
TCBZT55C 11	10.4	11.6	5	20	1	70	0.1	8.2
TCBZT55C 12	11.4	12.7	5	20	1	90	0.1	9.1
TCBZT55C 13	12.4	14.1	5	26	1	110	0.1	10

Electrical Characteristics

T_A = 25°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω) Max	I_{ZK} (mA)	Z_{ZK} @ I_{ZK} (Ω) Max	I_R @ V_R (μA) Max	V_R (Volts)
	Min	Max						
TCBZT55C 15	13.8	15.6	5	30	1	110	0.1	11
TCBZT55C 16	15.3	17.1	5	40	1	170	0.1	12
TCBZT55C 18	16.8	19.1	5	50	1	170	0.1	13
TCBZT55C 20	18.8	21.1	5	55	1	220	0.1	15
TCBZT55C 22	20.8	23.3	5	55	1	220	0.1	16
TCBZT55C 24	22.8	25.6	5	80	1	220	0.1	18
TCBZT55C 27	25.1	28.9	5	80	1	220	0.1	20
TCBZT55C 30	28	32	5	80	1	220	0.1	22
TCBZT55C 33	31	35	5	80	1	220	0.1	24
TCBZT55C 36	34	38	5	80	1	220	0.1	27
TCBZT55C 39	37	41	2.5	90	0.5	500	0.1	28
TCBZT55C 43	40	46	2.5	90	0.5	600	0.1	32
TCBZT55C 47	44	50	2.5	110	0.5	700	0.1	35
TCBZT55C 51	48	54	2.5	125	0.5	700	0.1	38
TCBZT55C 56	52	60	2.5	135	0.5	1000	0.1	42
TCBZT55C 62	58	66	2.5	150	0.5	1000	0.1	47
TCBZT55C 68	64	72	2.5	160	0.5	1000	0.1	51
TCBZT55C 75	70	79	2.5	170	0.5	1000	0.1	56

V_F Forward Voltage = 1.0 V Maximum @ I_F = 100 mA for all types

Device Type	V_Z @ I_{ZT} (Volts)		I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω) Max	I_{ZK} (mA)	Z_{ZK} @ I_{ZK} (Ω) Max	I_R @ V_R (μA) Max	V_R (Volts)
	Min	Max						
TCBZT55B 2V4	2.35	2.45	5	85	1	600	50	1
TCBZT55B 2V7	2.65	2.75	5	85	1	600	10	1
TCBZT55B 3V0	2.94	3.06	5	85	1	600	4	1
TCBZT55B 3V3	3.23	3.37	5	85	1	600	2	1
TCBZT55B 3V6	3.53	3.67	5	85	1	600	2	1
TCBZT55B 3V9	3.82	3.98	5	85	1	600	2	1
TCBZT55B 4V3	4.21	4.39	5	75	1	600	1	1
TCBZT55B 4V7	4.61	4.79	5	60	1	600	0.5	1
TCBZT55B 5V1	5.00	5.20	5	35	1	550	0.1	1
TCBZT55B 5V6	5.49	5.71	5	25	1	450	0.1	1
TCBZT55B 6V2	6.08	6.32	5	10	1	200	0.1	2
TCBZT55B 6V8	6.66	6.94	5	8	1	150	0.1	3
TCBZT55B 7V5	7.33	7.63	5	7	1	50	0.1	5
TCBZT55B 8V2	8.04	8.36	5	7	1	50	0.1	6.2
TCBZT55B 9V1	8.92	9.28	5	10	1	50	0.1	6.8
TCBZT55B 10	9.80	10.20	5	15	1	70	0.1	7.5
TCBZT55B 11	10.78	11.22	5	20	1	70	0.1	8.2
TCBZT55B 12	11.76	12.24	5	20	1	90	0.1	9.1
TCBZT55B 13	12.74	13.26	5	26	1	110	0.1	10
TCBZT55B 15	14.70	15.30	5	30	1	110	0.1	11
TCBZT55B 16	15.68	16.32	5	40	1	170	0.1	12
TCBZT55B 18	17.64	18.36	5	50	1	170	0.1	13
TCBZT55B 20	19.60	20.40	5	55	1	220	0.1	15
TCBZT55B 22	21.56	22.44	5	55	1	220	0.1	16
TCBZT55B 24	23.52	24.48	5	80	1	220	0.1	18
TCBZT55B 27	26.46	27.54	5	80	1	220	0.1	20
TCBZT55B 30	29.40	30.60	5	80	1	220	0.1	22
TCBZT55B 33	32.34	33.66	5	80	1	220	0.1	24
TCBZT55B 36	35.28	36.72	5	80	1	220	0.1	27
TCBZT55B 39	38.22	39.78	2.5	90	0.5	500	0.1	28
TCBZT55B 43	42.14	43.86	2.5	90	0.5	600	0.1	32

Electrical Characteristics

T_A = 25°C unless otherwise noted

Device Type	V_Z @ I_{ZT} (Volts)		I_{ZT} (mA)	Z_{ZT} @ I_{ZT} (Ω) **Max**	I_{ZK} (mA)	Z_{ZK} @ I_{ZK} (Ω) **Max**	I_R @ V_R (μA) **Max**	V_R (Volts)
	Min	Max						
TCBZT55B 47	46.06	47.94	2.5	110	0.5	700	0.1	35
TCBZT55B 51	49.98	52.02	2.5	125	0.5	700	0.1	38
TCBZT55B 56	54.88	57.12	2.5	135	0.5	1000	0.1	42
TCBZT55B 62	60.76	63.24	2.5	150	0.5	1000	0.1	47
TCBZT55B 68	66.64	69.36	2.5	160	0.5	1000	0.1	51
TCBZT55B 75	73.50	76.50	2.5	170	0.5	1000	0.1	56

V_F Forward Voltage = 1.0 V Maximum @ I_F = 100 mA for all types

Notes:

1. The type numbers listed have zener voltage min/max limits as shown.
2. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Tak Cheong Electronics representative.
3. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed to I_{ZT} or I_{ZK}.

Typical Characteristics

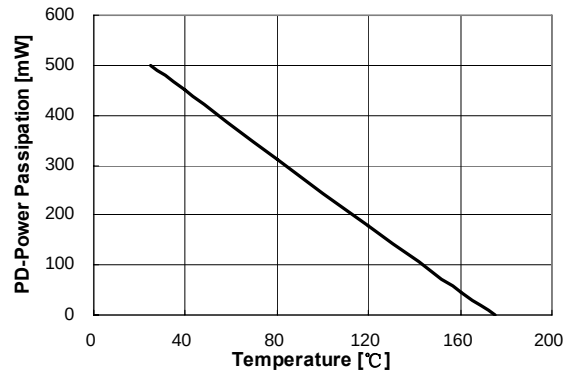


Figure 1. Power Dissipation vs Ambient Temperature
Valid provided leads at a distance of 0.8mm from case are kept at ambient temperature

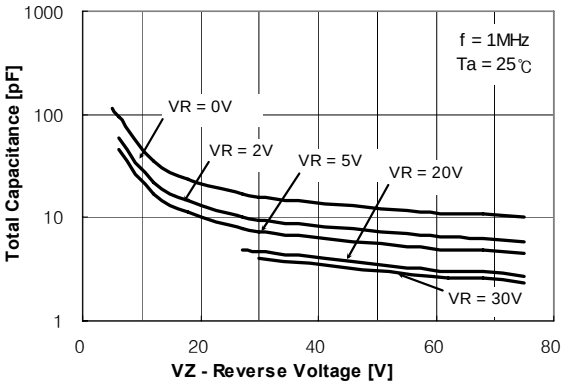


Figure 2. Total Capacitance

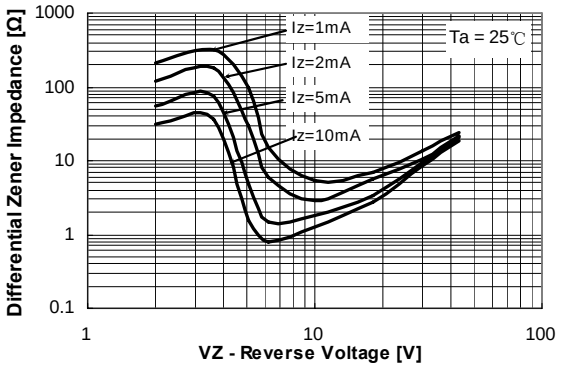


Figure 3. Differential Impedance vs. Zener Voltage

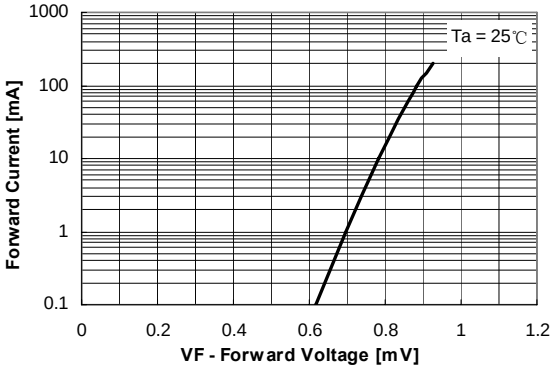


Figure 4. Forward Current vs. Forward Voltage

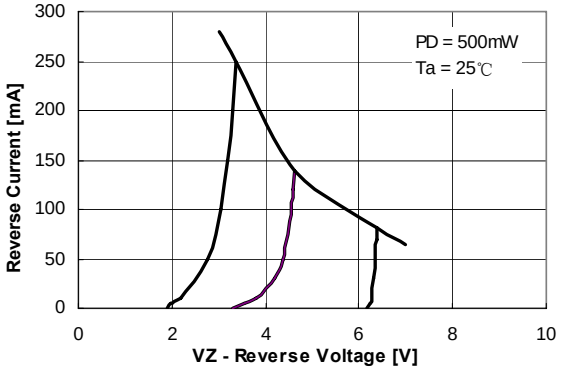


Figure 5. Reverse Current vs. Reverse Voltage

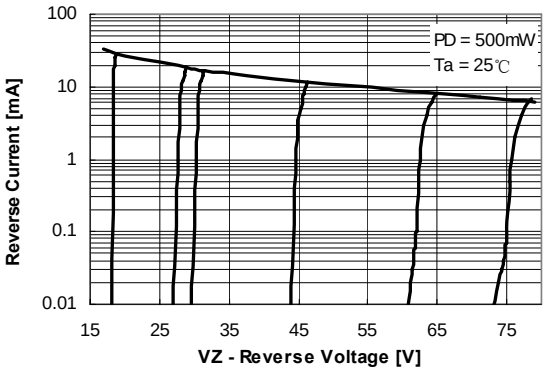
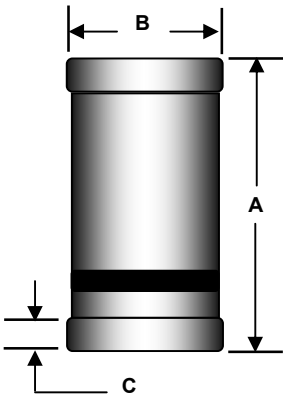
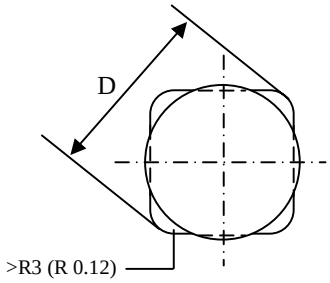


Figure 6. Reverse Current vs. Reverse Voltage

Package Outline

Case Outline





DIM	QUADRO (Mini-MELF)			
	Millimeters		Inches	
	Min	Max	Min	Max
A	3.30	3.70	0.130	0.146
B	1.40	1.60	0.055	0.063
C	0.25	0.40	0.010	0.016
D	Typical 1.8		Typical 0.071	

Notes:

1. JEDEC DO-213
2. Polarity Denoted by a Band.