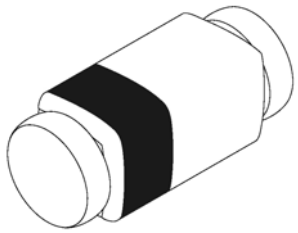
Zener diode

Features

1. High reliability
2. Very sharp reverse characteristic
3. Zener voltage 1.8V to 30V
4. V_Z-tolerance±5%



Applications

Voltage stabilization

Absolute Maximum Ratings

T_j=25℃

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	T_{amb}≤75℃		P_V	500	mW
Z-current			I_Z	P_V/V_Z	mA
Junction temperature			T_j	200	℃
Storage temperature range			T_{stg}	-65~+200	℃

Maximum Thermal Resistance

T_j=25℃

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	I=9.5mm(3/8") T_L=constant	R_{thJA}	300	K/W

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

Electrical Characteristics

T_j=25℃

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F=100mA		V_F			1.5	V

Type[1]	Zener voltage V_Z @ I_{ZT}=50μA			I_R at V_R[3]		I_{ZM}[2]	ΔV_Z[4]
	V_{Znom}[1]	V_{ZMin}	V_{ZMax}				
	V	V	V	μA	V	mA	V
TZS4678	1.8	1.71	1.89	7.5	1	120	0.7
TZS4679	2	1.9	2.1	5	1	110	0.7
TZS4680	2.2	2.09	2.31	4	1	100	0.75
TZS4681	2.4	2.28	2.52	2	1	95	0.8
TZS4682	2.7	2.565	2.835	1	1	90	0.85
TZS4683	3	2.85	3.15	0.8	1	85	0.9
TZS4684	3.3	3.135	3.465	7.5	1.5	80	0.95
TZS4685	3.6	3.42	3.78	7.5	2	75	0.95
TZS4686	3.9	3.705	4.095	5	2	70	0.97
TZS4687	4.3	4.085	4.515	4	2	65	0.99
TZS4688	4.7	4.465	4.935	10	3	60	0.99
TZS4689	5.1	4.845	5.355	10	3	55	0.97
TZS4690	5.6	5.32	5.88	10	4	50	0.96
TZS4691	6.2	5.89	6.51	10	5	45	0.95
TZS4692	6.8	6.46	7.14	10	5.1	35	0.9
TZS4693	7.5	7.125	7.875	10	5.7	31.8	0.75
TZS4694	8.2	7.79	8.61	1	6.2	29	0.5
TZS4695	8.7	8.265	9.135	1	6.6	27.4	0.1
TZS4696	9.1	8.645	9.555	1	6.9	26.2	0.08
TZS4697	10	9.5	10.5	1	7.6	24.8	0.1
TZS4698	11	10.45	11.55	0.05	8.4	21.6	0.11
TZS4699	12	11.4	12.6	0.05	9.1	20.4	0.12
TZS4700	13	12.35	13.65	0.05	9.8	19	0.13
TZS4701	14	13.3	14.7	0.05	10.6	17.5	0.14
TZS4702	15	14.25	15.75	0.05	11.4	16.3	0.15
TZS4703	16	15.20	16.8	0.05	12.1	15.4	0.16
TZS4704	17	16.15	17.85	0.05	12.9	14.5	0.17
TZS4705	18	17.10	18.9	0.05	13.6	13.2	0.18
TZS4707	20	19	21	0.01	15.2	11.9	0.2
TZS4711	27	25.65	28.35	0.01	20.4	8.8	0.27
TZS4713	30	28.5	31.5	0.01	22.8	7.9	0.3

[1] **Tolerance and voltage designation(Vz):**

The type numbers shown have a standard tolerance of ±5% on the nominal zener voltage, C for ±2%, D for ±1%.

[2] **Maximum zener current ratings(I_{ZM}):**

Maximum zener current ratings are based on maximum zener voltage of the individual units and JEDEC 250 mW rating.

[3] **Reverse leakage current(I_R):**

Reverse leakage currents are guaranteed and measured at V_R as shown on the table.

[4] **Maximum voltage change(ΔV_Z):**

Voltage change is equal to the difference between V_Z at 100μA and V_Z at 10μA.

Characteristics (T_j=25℃ unless otherwise specified)

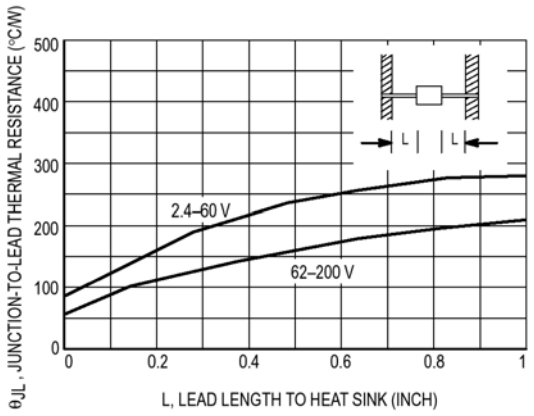


Figure 1. Typical Thermal Resistance

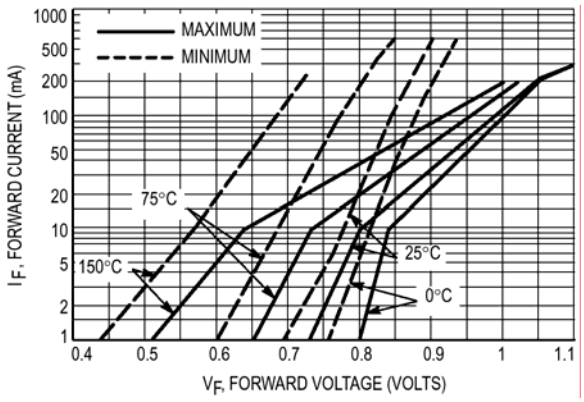
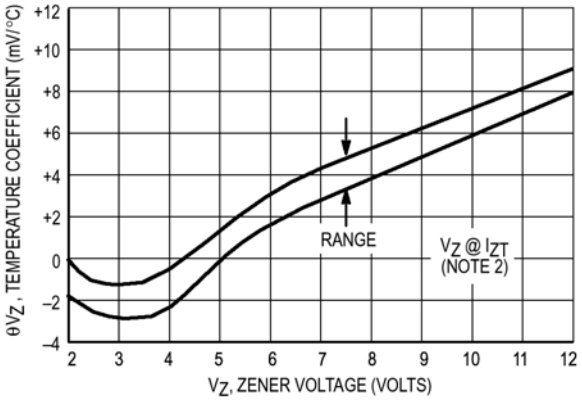


Figure 2. Typical Forward Characteristics



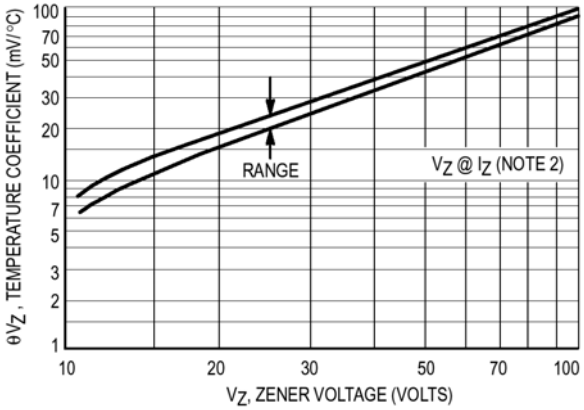
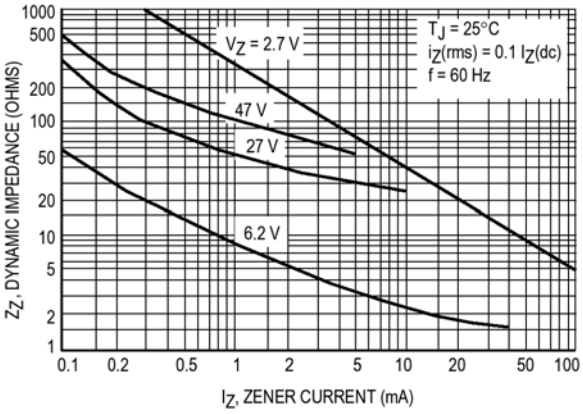


Figure 3. Temperature coefficients

(-55℃ to +150℃ temperature range; 90% of the units are in the ranges indicated.)



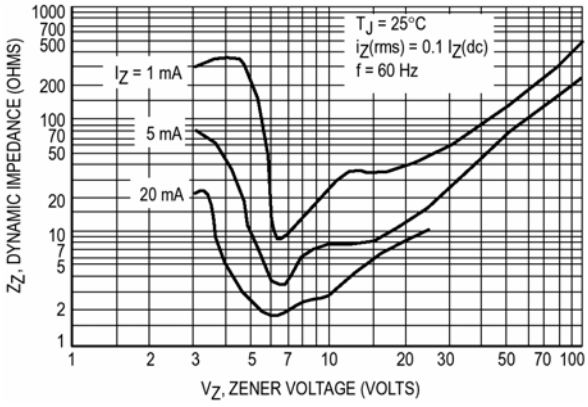


Figure 4. Effect of zener current on zener impedance

Figure 5. Effect of zener voltage on zener impedance

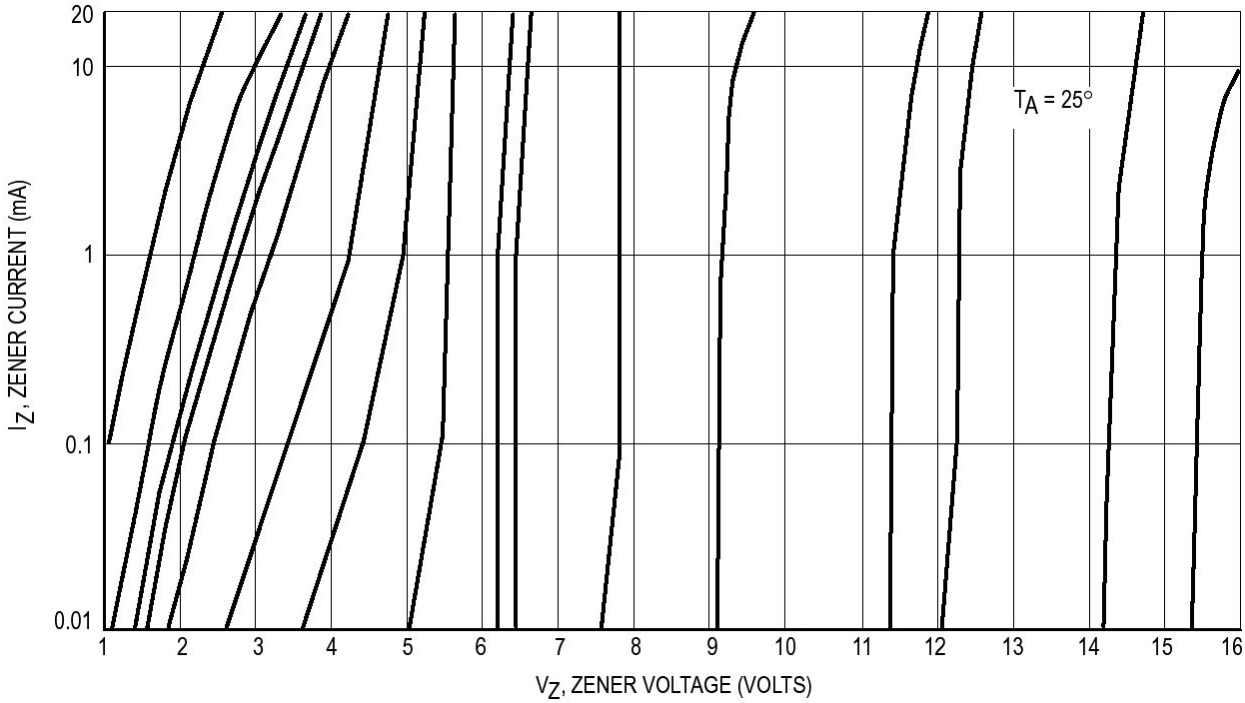


Figure 6. Zener Voltage versus Zener Current – Vz=1 thru 16 Volts

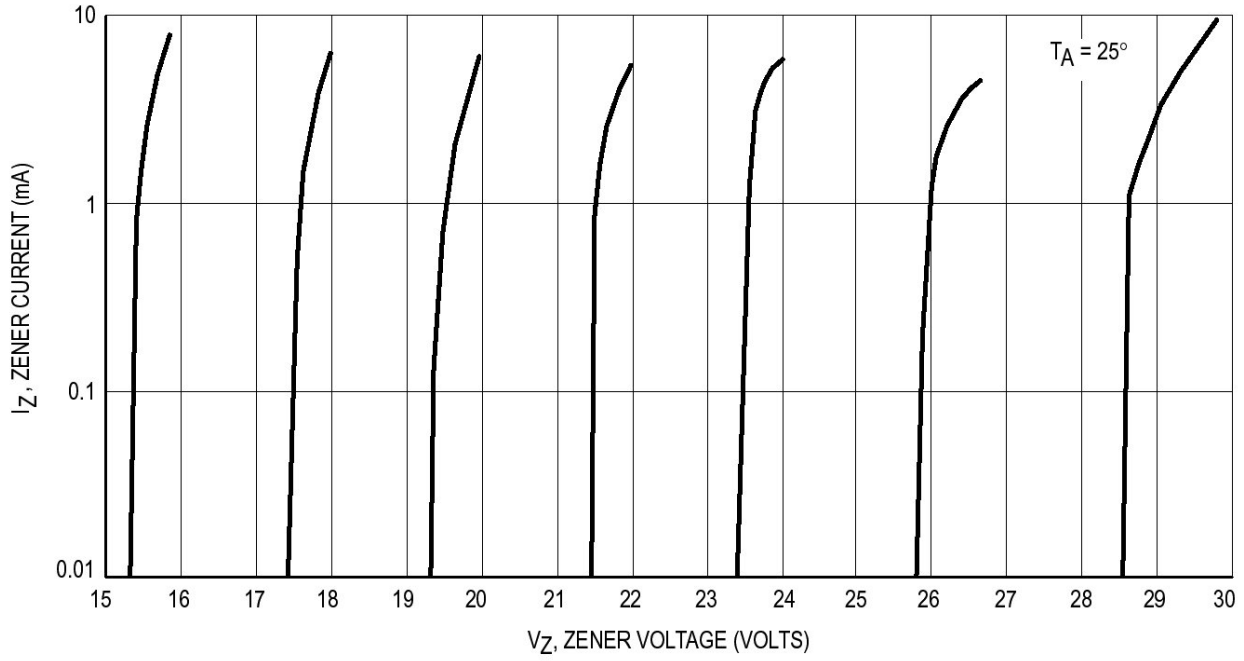


Figure 7. Zener Voltage versus Zener Current – Vz=15 thru 30 Volts

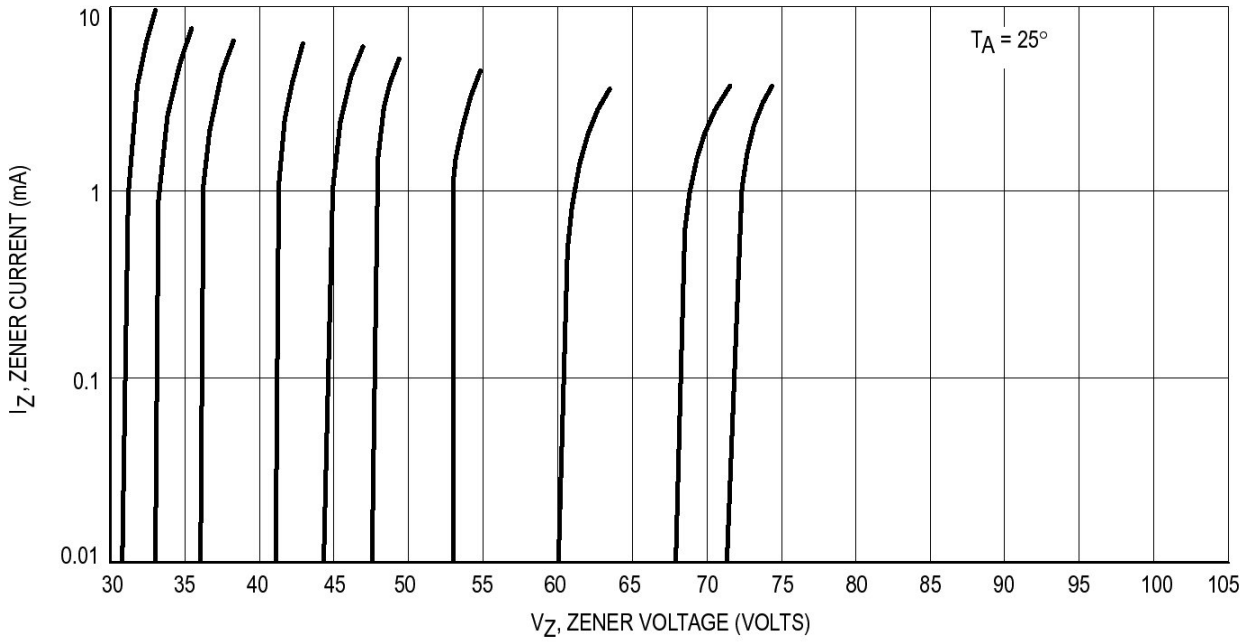
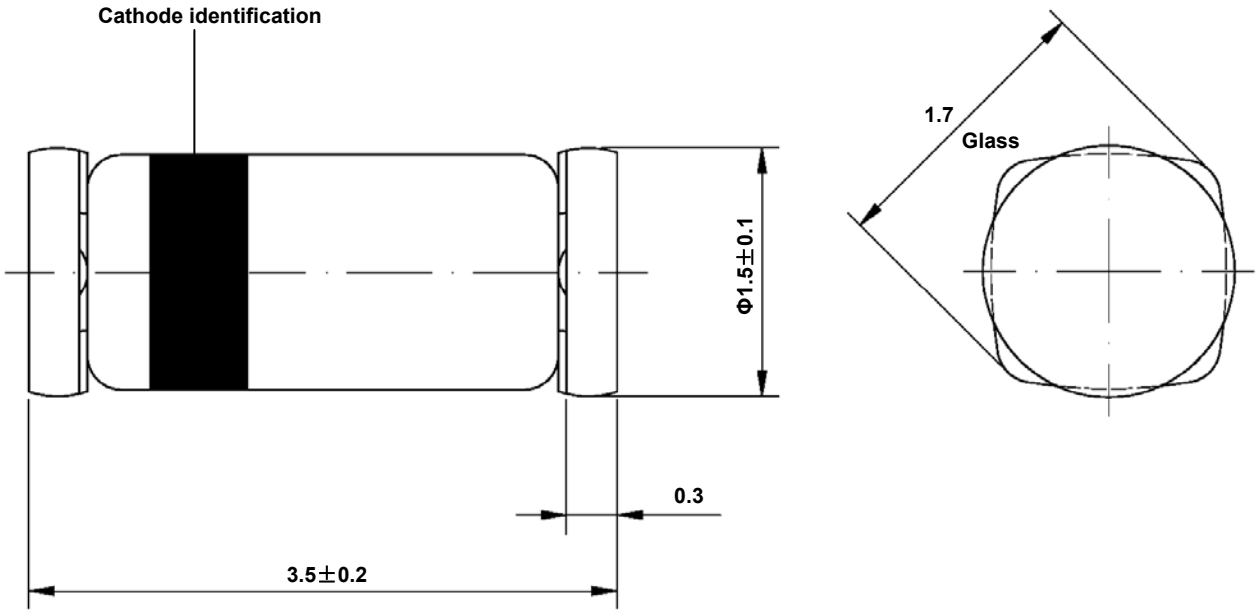


Figure 8. Zener Voltage versus Zener Current – Vz=30 thru 75 Volts

Dimensions in mm



Glass Case
Quadro MELF
Similar to JEDEC DO-213 AA