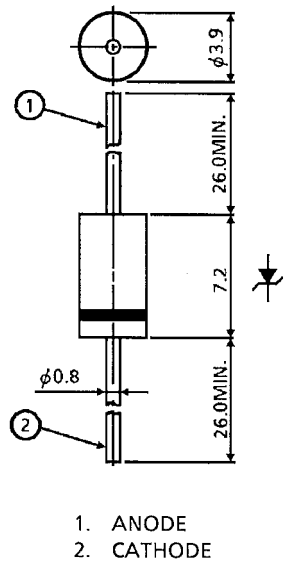
TOSHIBA ZENER DIODE SILICON DIFFUSED TYPE

2Z12~2Z51

CONSTANT VOLTAGE REGULATION
TRANSIENT SUPPRESSORS

- Average Power Dissipation : P=1.5W
- Peak Reverse Power Dissipation
  : P_{RSM}=900W at t_W=200μs
- Zener Voltage : V_Z=12~51V
- Plastic Mold Package

Unit in mm

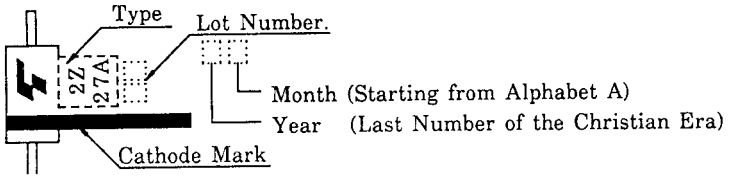


1. ANODE
2. CATHODE

JEDEC	—
EIAJ	—
TOSHIBA	3−4B1A

Weight : 0.47 g

MARK



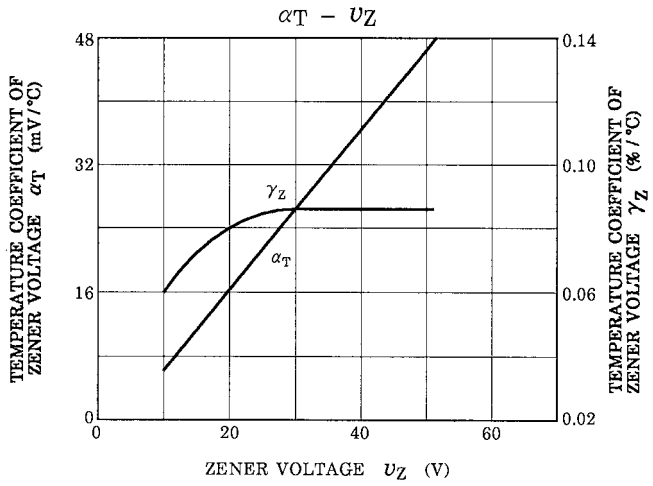
MAXIMUM RATINGS (Ta = 25°C)

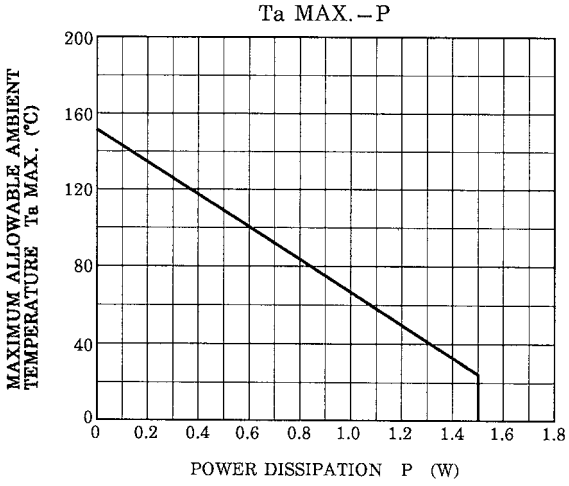
CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Dissipation	P	1.5	W
Junction Temperature	T_j	−40 ~ 150	°C
Storage Temperature Range	T_{stg}	−40 ~ 150	°C

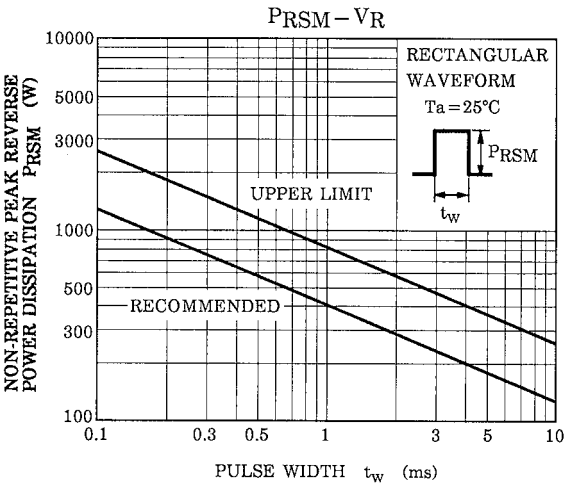
ELECTRICAL CHARACTERISTICS (Ta=25°C)

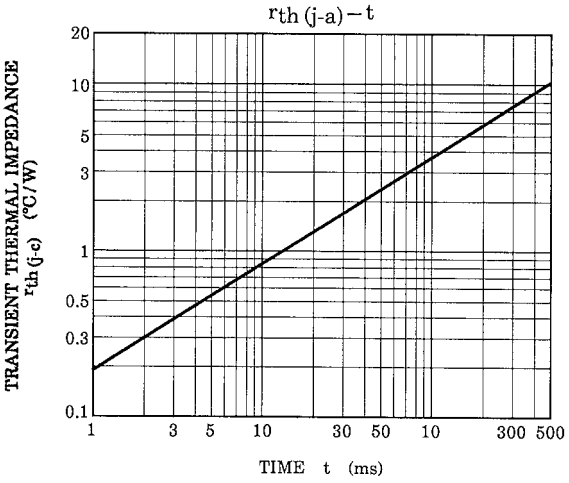
TYPE	ZENER CHARACTERISTICS					TEMPERATURE COEFFICIENT OF ZENER VOLTAGE α_T (mV / °C)		FORWARD VOLTAGE		REVERSE CURRENT	
	ZENER VOLTAGE V_Z (V)			ZENER IMPEDANCE r_d (Ω)	MEASUREMENT CURRENT I_Z (mA)			V_F (V)	MEASUREMENT CURRENT I_F (A)	I_R (μA)	MEASUREMENT VOLTAGE V_R (V)
	MIN.	TYP.	MAX.	MAX.		TYP.	MAX.	MAX.		MAX	
2Z12	10.8	12	13.2	30	10	8	13	1.2	0.2	5	10.2
2Z13	11.7	13	14.3	30	10	9	14	1.2	0.2	5	11.1
2Z15	13.5	15	16.5	30	10	11	17	1.2	0.2	5	12.8
2Z16	14.4	16	17.6	30	10	12	19	1.2	0.2	5	13.6
*2Z16A	15.2	16	16.8	30	10	12	19	1.2	0.2	5	13.6
2Z18	16.2	18	19.8	30	10	14	23	1.2	0.2	5	15.3
*2Z18A	17.1	18	18.9	30	10	14	23	1.2	0.2	5	15.3
2Z20	18.0	20	22.0	30	10	16	26	1.2	0.2	5	17.1
2Z22	19.8	22	24.2	30	10	18	28	1.2	0.2	5	18.8
2Z24	21.6	24	26.4	30	10	20	32	1.2	0.2	5	20.5
2Z27	24.3	27	29.7	30	10	23	36	1.2	0.2	5	23.1
*2Z27A	25.7	27	28.3	30	10	23	36	1.2	0.2	5	23.1
2Z30	27.0	30	33.0	30	10	25	40	1.2	0.2	5	25.6
2Z33	29.7	33	36.3	30	10	26	41	1.2	0.2	5	28.2
2Z36	32.4	36	39.6	30	9	28	45	1.2	0.2	5	30.8
2Z43	38.7	43	47.3	40	7	33	53	1.2	0.2	5	34.4
2Z47	42.3	47	51.7	65	6	38	60	1.2	0.2	5	40.2
2Z51	45.9	51	56.1	65	6	43	68	1.2	0.2	5	43.6

Note: * Production upon request.


αT – υZ
TEMPERATURE COEFFICIENT OF ZENER VOLTAGE αT (mV/°C)
TEMPERATURE COEFFICIENT OF ZENER VOLTAGE γZ (%/°C)
48
32
16
0
0.14
0.10
0.06
0.02
γZ
αT
0
20
40
60
ZENER VOLTAGE υZ (V)


Ta MAX.–P
MAXIMUM ALLOWABLE AMBIENT TEMPERATURE Ta MAX. (°C)
200
160
120
80
40
0
0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8
POWER DISSIPATION P (W)


PRSM–VR
NON-REPETITIVE PEAK REVERSE POWER DISSIPATION PRSM (W)
10000
5000
3000
1000
500
300
100
RECTANGULAR WAVEFORM
Ta=25°C
PRSM
tw
UPPER LIMIT
RECOMMENDED
0.1 0.3 0.5 1 3 5 10
PULSE WIDTH tw (ms)


rth (j-a)–t
TRANSIENT THERMAL IMPEDANCE rth (j-a) (°C/W)
20
10
5
3
1
0.5
0.3
0.1
1 3 5 10 30 50 10 300 500
TIME t (ms)