

TOSHIBA ZENER DIODE SILICON DIFFUSED TYPE

# 3Z12~3Z390

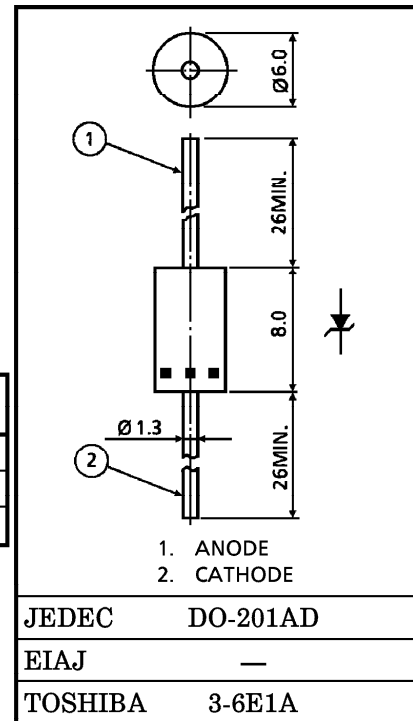
VOLTAGE DETECTOR AND SUPPRESSOR APPLICATIONS

Unit in mm

- Average Power Dissipation :  $P=3W$
- Peak Reverse Power Dissipation :  $P_{RSM}=1500W/1ms\ expo$
- Zener Voltage :  $V_Z=12\sim390V$
- Tolerance of Zener Voltage :  $\pm 10\%$
- Plastic Mold Package

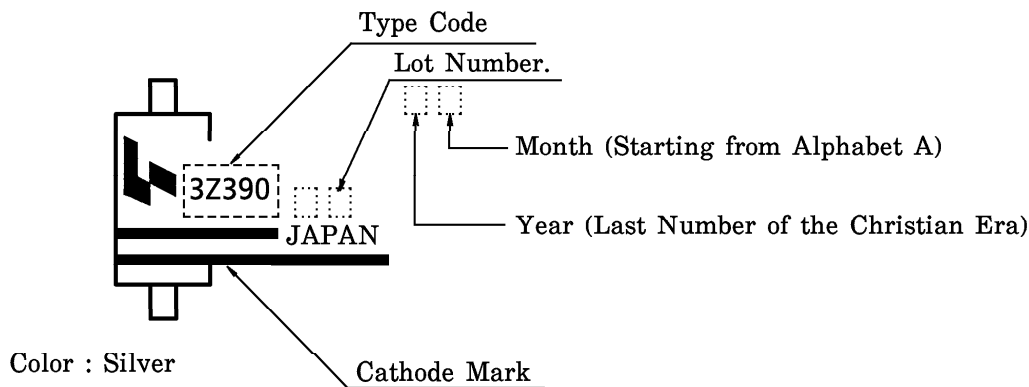
MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Dissipation	P	3.0	W
Junction Temperature	$T_j$	-40 ~ 150	°C
Storage Temperature Range	$T_{stg}$	-40 ~ 150	°C



Weight : 1.18g

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● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

TYPE	ZENER CHARACTERISTICS					TEMPERATURE COEFFICIENT OF ZENER VOLTAGE $\alpha_T$ (mV/°C)		FORWARD VOLTAGE		REVERSE CURRENT	
	ZENER VOLTAGE $V_Z$ (V)			ZENER IMPEDANCE $r_d$ ( $\Omega$ )	MEASUREMENT CURRENT $I_Z$ (mA)	TYP.	MAX.	$V_F$ (V)	MEASUREMENT CURRENT $I_F$ (A)	$I_R$ ( $\mu$ A)	MEASUREMENT VOLTAGE $V_R$ (V)
	MIN.	TYP.	MAX.	MAX.							
3Z12	10.8	12	13.2	30	10	8	13	1.2	0.2	10	8
3Z13	11.7	13	14.3	30	10	9	14	1.2	0.2	10	9
3Z15	13.5	15	16.5	30	10	11	17	1.2	0.2	10	10
3Z16	14.4	16	17.6	30	10	12	19	1.2	0.2	10	11
3Z18	16.2	18	19.8	30	10	14	23	1.2	0.2	10	13
3Z20	18.0	20	22.0	30	10	16	26	1.2	0.2	10	14
3Z22	19.8	22	24.2	30	10	18	28	1.2	0.2	10	16
3Z24	21.6	24	26.4	30	10	20	32	1.2	0.2	10	17
3Z27	24.3	27	29.7	30	10	23	36	1.2	0.2	10	19
3Z30	27.0	30	33.0	30	10	25	40	1.2	0.2	10	21
3Z33	29.7	33	36.3	30	10	26	41	1.2	0.2	10	26.4
3Z36	32.4	36	39.6	30	9	28	45	1.2	0.2	10	28.8
3Z43	38.7	43	47.3	40	7	33	53	1.2	0.2	10	34.4
3Z47	42.3	47	51.7	65	6	38	60	1.2	0.2	10	37.6
3Z51	45.9	51	56.1	65	6	43	68	1.2	0.2	10	40.8
3Z68	61.2	68	74.8	120	4	57	90	1.2	0.2	10	54.4
3Z75	67.5	75	82.5	150	4	66	104	1.2	0.2	10	60
3Z82	73.8	82	90.2	170	3	71	113	1.2	0.2	10	65.4
3Z100	90	100	110	300	3	87	138	1.2	0.2	10	80
3Z110	99	110	121	300	3	96	152	1.2	0.2	10	88
3Z150	135	150	165	450	2	136	212	1.2	0.2	10	120
3Z180	162	180	198	500	1.5	161	255	1.2	0.2	10	144
3Z200	180	200	220	500	1.5	170	269	1.2	0.2	10	160
3Z220	198	220	242	5000	0.5	200	309	1.2	0.2	10	176
3Z240	216	240	264	5000	0.5	215	343	1.2	0.2	10	192
3Z270	243	270	297	5000	0.5	243	385	1.2	0.2	10	216
3Z300	270	300	330	5000	0.5	270	428	1.2	0.2	10	240
3Z330	297	330	363	5000	0.5	296	470	1.2	0.2	10	264
3Z390	351	390	429	10000	0.5	350	555	1.2	0.2	10	312

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