TOSHIBA Diode Silicon Epitaxial Planar Type

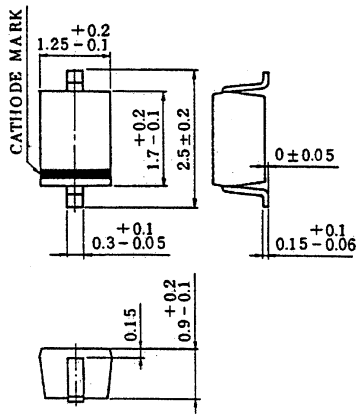
02DZ2.0~02DZ24

Constant Voltage Regulation Applications

Reference Voltage Applications

- The mounting of four devices on an ultra-compact package allows the number of parts and the mounting cost to be reduced.
- Nominal voltage tolerance about ±2.5%
  (2.0V~24V)

Unit: mm



JEDEC	−
JEITA	−
TOSHIBA	1-1E1A

Weight: 4.5mg (typ.)

Maximum Ratings (Ta = 25°C)

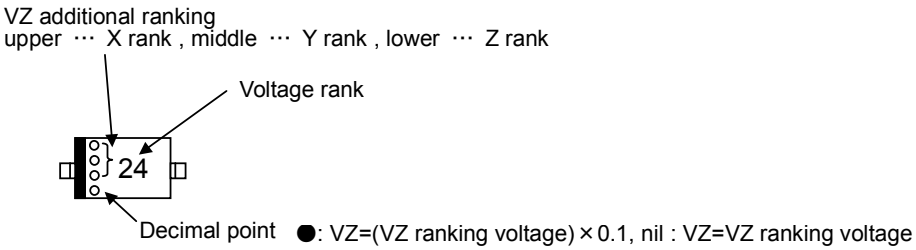
Characteristic	Symbol	Rating	Unit
Power dissipation	P*	200	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	−55~125	°C

*: Mounted on a glass epoxy circuit board of 20 × 20mm, pad dimensions of 4 × 4mm.

Electrical Characteristics

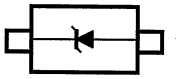
(See Pages 3~5.)

Marking



Example1:02DZ2.4-X Example2:02DZ2.4-Z Example3:02DZ24-X

Pin Assignment (top view)



Electrical Characteristics (Ta = 25ºC)

Type No.		Zener Voltage			Dynamic Impedance		Knee Dynamic Impedance		Reverse Current	
		* V_Z (V)		I_Z (mA)	Z_Z(Ω)	I_Z (mA)	Z_{ZK} (Ω)	I_Z (mA)	I_R (μA)	V_R (V)
		Min	Max		Max		Max		Max	
02DZ2.0**	X	1.85	2.05	5	100	5	1000	0.5	120	0.5
	Z	1.95	2.15							
02DZ2.2**	X	2.05	2.26	5	100	5	1000	0.5	120	1.0
	Z	2.16	2.38							
02DZ2.4	X	2.28	2.50	5	100	5	1000	0.5	120	1.0
	Z	2.40	2.60							
02DZ2.7	X	2.50	2.75	5	110	5	1000	0.5	120	1.0
	Z	2.65	2.90							
02DZ3.0	X	2.80	3.05	5	120	5	1000	0.5	50	1.0
	Z	2.95	3.20							
02DZ3.3	X	3.10	3.35	5	130	5	1000	0.5	20	1.0
	Z	3.25	3.50							
02DZ3.6	X	3.40	3.65	5	130	5	1000	0.5	10	1.0
	Z	3.55	3.80							
02DZ3.9	X	3.70	3.97	5	130	5	1000	0.5	10	1.0
	Z	3.87	4.10							
02DZ4.3	X	4.00	4.23	5	130	5	1000	0.5	5	1.0
	Y	4.13	4.35							
	Z	4.25	4.50							
02DZ4.7	X	4.40	4.63	5	120	5	1000	0.5	5	1.0
	Y	4.53	4.76							
	Z	4.66	4.90							
02DZ5.1	X	4.80	5.07	5	70	5	1000	0.5	1	1.5
	Y	4.97	5.24							
	Z	5.14	5.40							
02DZ5.6	X	5.30	5.63	5	40	5	900	0.5	1	2.5
	Y	5.43	5.81							
	Z	5.61	6.00							
02DZ6.2	X	5.80	6.20	5	30	5	500	0.5	1	3.0
	Y	6.00	6.39							
	Z	6.19	6.60							

*: Test time: t = 30ms

**: Product by order

Electrical Characteristics (Ta = 25ºC)

Type No.		Zener Voltage			Dynamic Impedance		Knee Dynamic Impedance		Reverse Current	
		* V_Z (V)		I_Z (mA)	Z_Z(Ω)	I_Z (mA)	Z_{ZK} (Ω)	I_Z (mA)	I_R (μA)	V_R (V)
		Min	Max		Max		Max		Max	
02DZ6.8	X	6.40	6.80	5	25	5	150	0.5	0.5	5.0
	Y	6.60	7.02							
	Z	6.82	7.20							
02DZ7.5	X	7.00	7.43	5	23	5	120	0.5	0.5	6.0
	Y	7.23	7.66							
	Z	7.46	7.90							
02DZ8.2	X	7.70	8.16	5	20	5	120	0.5	0.5	6.5
	Y	7.96	8.43							
	Z	8.23	8.70							
02DZ9.1	X	8.50	9.00	5	18	5	120	0.5	0.5	7.0
	Y	8.80	9.30							
	Z	9.10	9.60							
02DZ10	X	9.40	9.93	5	15	5	120	0.5	0.5	8.0
	Y	9.73	10.26							
	Z	10.06	10.60							
02DZ11	X	10.40	10.98	5	15	5	120	0.5	0.5	8.5
	Y	10.73	11.26							
	Z	11.06	11.60							
02DZ12	X	11.40	11.93	5	15	5	110	0.5	0.5	9.0
	Y	11.73	12.26							
	Z	12.06	12.60							
02DZ13	X	12.40	13.08	5	15	5	110	0.5	0.5	10
	Y	12.88	13.57							
	Z	13.37	14.10							
02DZ15	X	13.80	14.63	5	15	5	110	0.5	0.5	11
	Y	14.33	15.11							
	Z	14.81	15.60							
02DZ16	X	15.30	16.10	5	18	5	150	0.5	0.5	12
	Y	15.80	16.60							
	Z	16.30	17.10							
02DZ18	X	16.80	17.76	5	20	5	150	0.5	0.5	14
	Y	17.46	18.43							
	Z	18.13	19.10							

*: Test time: t = 30ms

**: Product by order

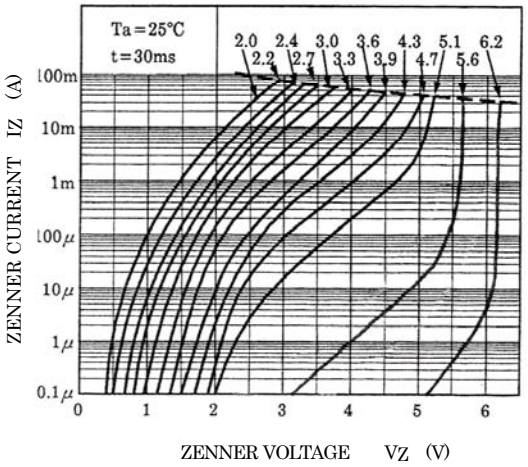
Electrical Characteristics (Ta = 25ºC)

Type No.		Zener Voltage			Dynamic Impedance		Knee Dynamic Impedance		Reverse Current	
		* V_Z (V)		I_Z (mA)	Z_Z(Ω)	I_Z (mA)	Z_{ZK} (Ω)	I_Z (mA)	I_R (μA)	V_R (V)
		Min	Max		Max		Max		Max	
02DZ20	X	18.80	19.78	5	25	5	200	0.5	0.5	15
	Y	19.48	20.46							
	Z	20.16	21.20							
02DZ22	X	20.80	21.88	5	30	5	200	0.5	0.5	17
	Y	21.48	22.56							
	Z	22.16	23.30							
02DZ24	X	22.80	24.11	5	40	5	200	0.5	0.5	19
	Y	23.61	24.92							
	Z	24.42	25.60							

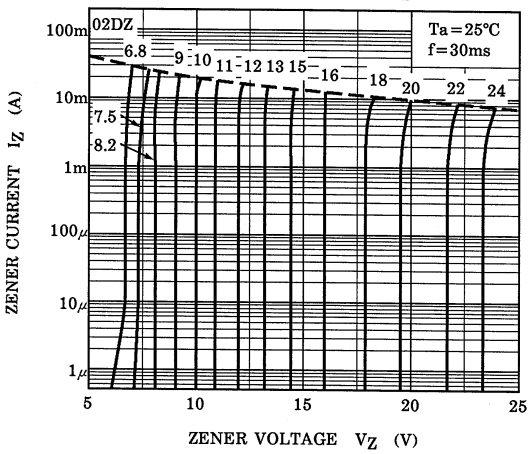
*: Test time: t = 30ms

**: Product by order

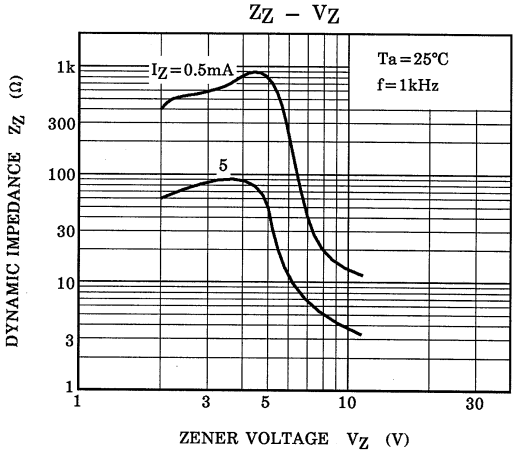
$I_Z - V_Z$ (V_Z: 2.0~6.2)



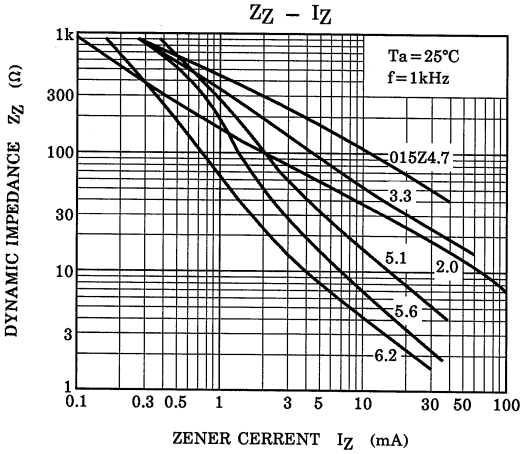
$I_Z - V_Z$ (V_Z : 6.8~24)



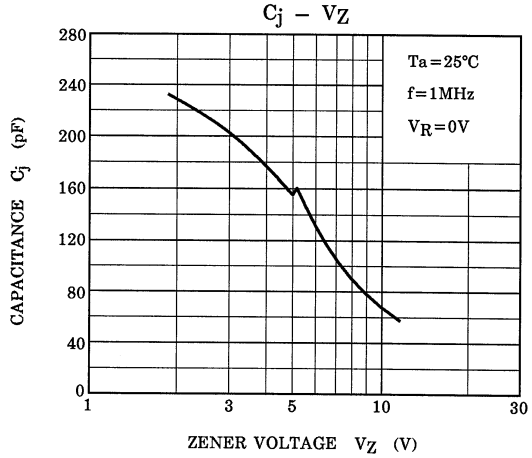
$Z_Z - V_Z$



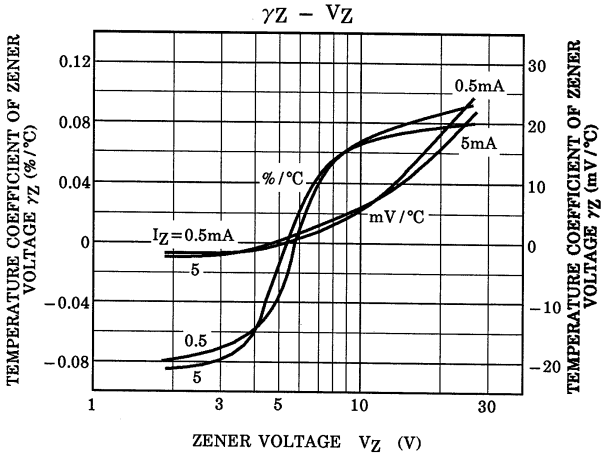
$Z_Z - I_Z$

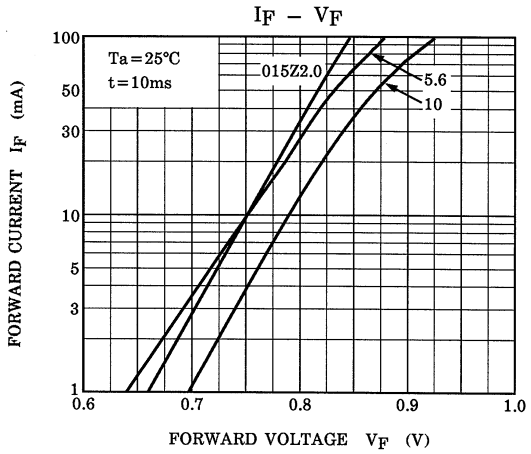


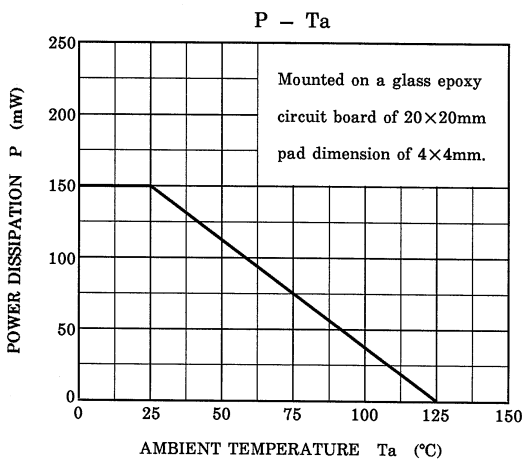
$C_j - V_Z$



$\gamma Z - V_Z$




$I_F - V_F$
Ta=25°C
t=10ms
015Z2.0
5.6
10
FORWARD CURRENT I_F (mA)
100
50
30
10
5
3
1
0.6
0.7
0.8
0.9
1.0
FORWARD VOLTAGE V_F (V)


P – Ta
Mounted on a glass epoxy
circuit board of 20×20mm
pad dimension of 4×4mm.
POWER DISSIPATION P (mW)
250
200
150
100
50
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE Ta (°C)

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