

OM SENI

MM3ZxxxT1G Series Zener Voltage Regulators

300 mW SOD-323 Surface Mount

This series of Zener diodes is packaged in a SOD-323 surface mount package that has a power dissipation of 300 mW. They are designed to provide voltage regulation protection and are especially attractive in situations where space is at a premium. They are well suited for applications such as cellular phones, hand held portables, and high density PC boards.

Specification Features:

- Standard Zener Breakdown Voltage Range – 2.4 V to 75 V
- Steady State Power Rating of 300 mW
- Small Body Outline Dimensions:
0.067" x 0.049" (1.7 mm x 1.25 mm)
- Low Body Height: 0.035" (0.9 mm)
- Package Weight: 4.507 mg/Unit
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- These are Pb-Free Devices*

Mechanical Characteristics:

CASE: Void-free, Transfer-Molded Plastic

FINISH: All External Surfaces are Corrosion Resistant

MAXIMUM CASE TEMPERATURE FOR SOLDERING PURPOSES:

260°C for 10 Seconds

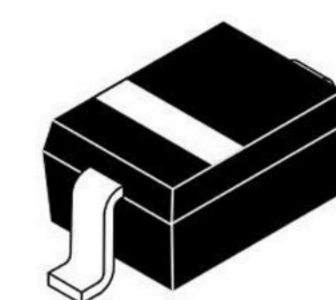
LEADS: Plated with Pb-Sn or Sn Only (Pb-Free)

POLARITY: Cathode Indicated by Polarity Band

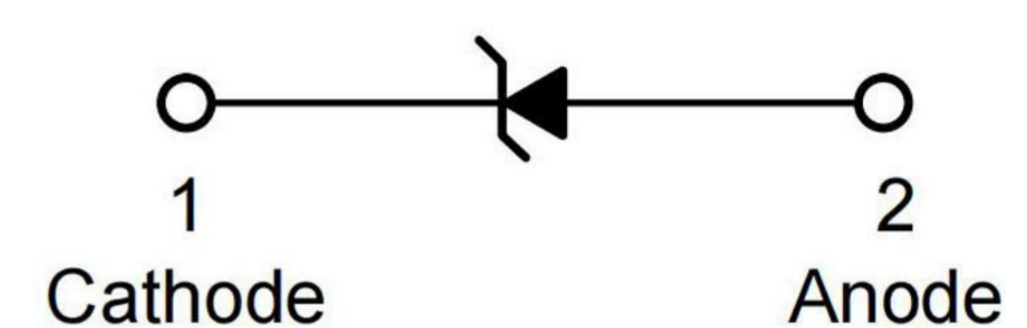
MOUNTING POSITION: Any

MAXIMUM RATINGS

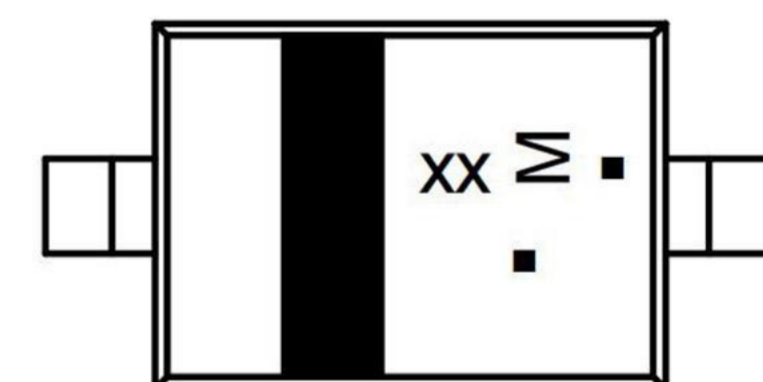
Rating	Symbol	Max	Unit
Total Device Dissipation FR-4 Board, (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	416	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	-65 to +150	°C



SOD-323
CASE 477
STYLE 1



MARKING DIAGRAM



xx = Specific Device Code

M = Date Code*

▪ = Pb-Free Package

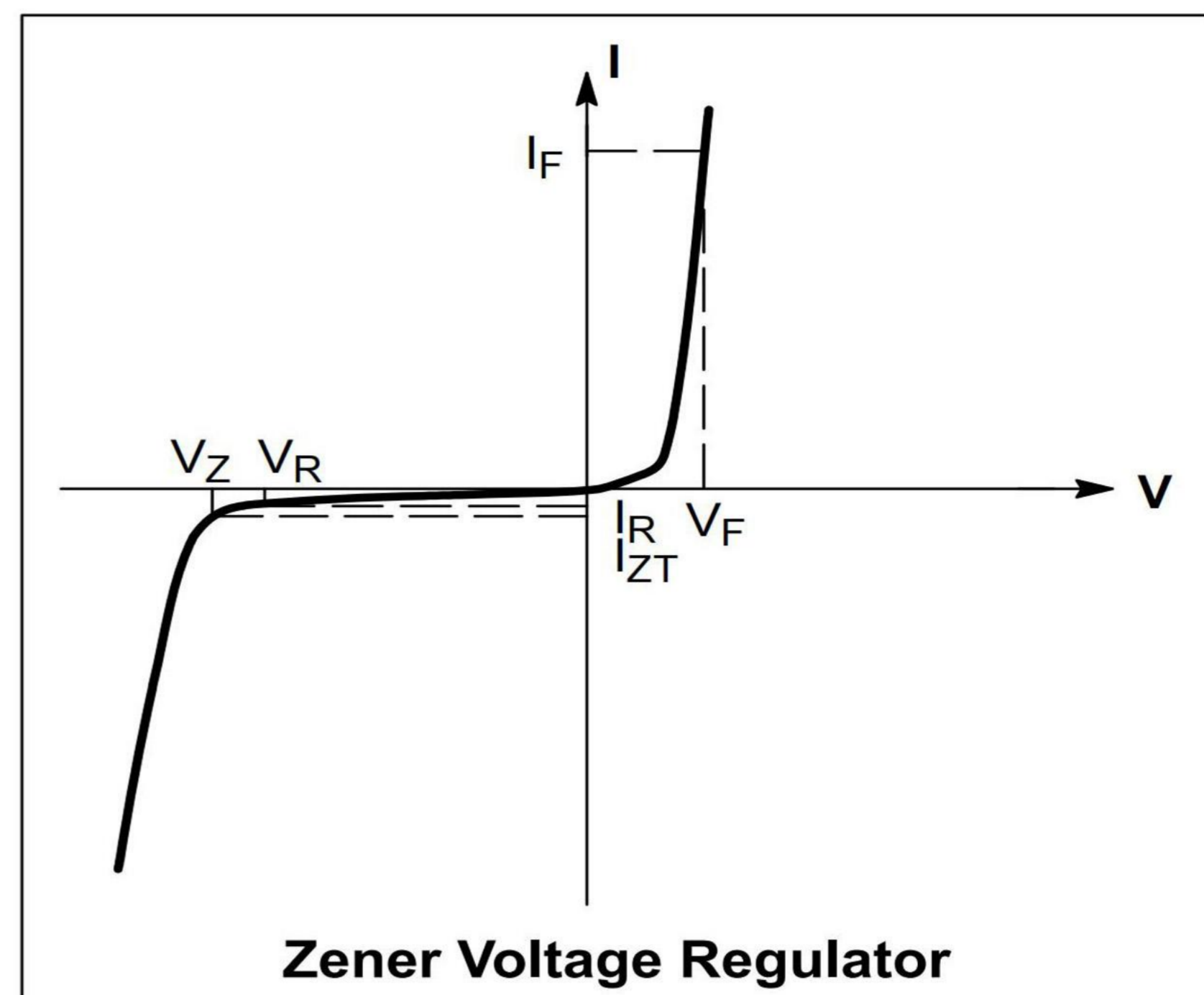
(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

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ELECTRICAL CHARACTERISTICS

Symbol	Parameter
V_Z	Reverse Zener Voltage @ I_{ZT}
I_{ZT}	Reverse Current
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}
I_R	Reverse Leakage Current @ V_R
V_R	Reverse Voltage
I_F	Forward Current
V_F	Forward Voltage @ I_F
ΘV_Z	Maximum Temperature Coefficient of V_Z
C	Max. Capacitance @ $V_R = 0$ and $f = 1$ MHz



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted, $V_F = 0.9$ V Max. @ $I_F = 10$ mA for all types)

Device*	Device Marking	Zener Voltage (Note 2)				Zener Impedance			Leakage Current		ΘV_Z (mV/k) @ I_{ZT}		C @ $V_R = 0$ f = 1 MHz pF
		V_Z (Volts)			@ I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}		I_R @ V_R		Min	Max	
		Min	Nom	Max	mA	Ω	Ω	mA	μA	Volts			
MM3Z2V4T1G	00	2.2	2.4	2.6	5	100	1000	0.5	50	1.0	-3.5	0	450
MM3Z2V7T1G	01	2.5	2.7	2.9	5	100	1000	0.5	20	1.0	-3.5	0	450
MM3Z3V0T1G	02	2.8	3.0	3.2	5	100	1000	0.5	10	1.0	-3.5	0	450
MM3Z3V3T1G	05	3.1	3.3	3.5	5	95	1000	0.5	5	1.0	-3.5	0	450
MM3Z3V6T1G	06	3.4	3.6	3.8	5	90	1000	0.5	5	1.0	-3.5	0	450
MM3Z3V9T1G	07	3.7	3.9	4.1	5	90	1000	0.5	3	1.0	-3.5	-2.5	450
MM3Z4V3T1G	08	4.0	4.3	4.6	5	90	1000	0.5	3	1.0	-3.5	0	450
MM3Z4V7T1G	09	4.4	4.7	5.0	5	80	800	0.5	3	2.0	-3.5	0.2	260
MM3Z5V1T1G	0A	4.8	5.1	5.4	5	60	500	0.5	2	2.0	-2.7	1.2	225
MM3Z5V6T1G	0C	5.2	5.6	6.0	5	40	200	0.5	1	2.0	-2.0	2.5	200
MM3Z6V2T1G	0E	5.8	6.2	6.6	5	10	100	0.5	3	4.0	0.4	3.7	185
MM3Z6V8T1G	0F	6.4	6.8	7.2	5	15	160	0.5	2	4.0	1.2	4.5	155
MM3Z7V5T1G	0G	7.0	7.5	7.9	5	15	160	0.5	1	5.0	2.5	5.3	140
MM3Z8V2T1G	0H	7.7	8.2	8.7	5	15	160	0.5	0.7	5.0	3.2	6.2	135
MM3Z9V1T1G	0K	8.5	9.1	9.6	5	15	160	0.5	0.2	7.0	3.8	7.0	130
MM3Z10VT1G	0L	9.4	10	10.6	5	20	160	0.5	0.1	8.0	4.5	8.0	130
MM3Z11VT1G	0M	10.4	11	11.6	5	20	160	0.5	0.1	8.0	5.4	9.0	130
MM3Z12VT1G	0N	11.4	12	12.7	5	25	80	0.5	0.1	8.0	6.0	10	130
MM3Z13VT1G	0P	12.4	13.25	14.1	5	30	80	0.5	0.1	8.0	7.0	11	120
MM3Z15VT1G	0T	14.3	15	15.8	5	30	80	0.5	0.05	10.5	9.2	13	110
MM3Z16VT1G	0U	15.3	16.2	17.1	5	40	80	0.5	0.05	11.2	10.4	14	105
MM3Z18VT1G	0W	16.8	18	19.1	5	45	80	0.5	0.05	12.6	12.4	16	100
MM3Z20VT1G	0Z	18.8	20	21.2	5	55	100	0.5	0.05	14.0	14.4	18	85
MM3Z22VT1G	10	20.8	22	23.3	5	55	100	0.5	0.05	15.4	16.4	20	85
MM3Z24VT1G	11	22.8	24.2	25.6	5	70	120	0.5	0.05	16.8	18.4	22	80
MM3Z27VT1G	12	25.1	27	28.9	2	80	300	0.5	0.05	18.9	21.4	25.3	70
MM3Z30VT1G	14	28	30	32	2	80	300	0.5	0.05	21.0	24.4	29.4	70
MM3Z33VT1G	18	31	33	35	2	80	300	0.5	0.05	23.2	27.4	33.4	70
MM3Z36VT1G	19	34	36	38	2	90	500	0.5	0.05	25.2	30.4	37.4	70
MM3Z39VT1G	20	37	39	41	2	130	500	0.5	0.05	27.3	33.4	41.2	45
MM3Z43VT1G	21	40	43	46	2	150	500	0.5	0.05	30.1	37.6	46.6	40
MM3Z47VT1G	1A	44	47	50	2	170	500	0.5	0.05	32.9	42.0	51.8	40
MM3Z51VT1G	1C	48	51	54	2	180	500	0.5	0.05	35.7	46.6	57.2	40
MM3Z56VT1G	1D	52	56	60	2	200	500	0.5	0.05	39.2	52.2	63.8	40
MM3Z62VT1G	2A	58	62	66	2	215	500	0.5	0.05	43.4	58.9	71.8	35
MM3Z68VT1G	1F	64	68	72	2	240	500	0.5	0.05	47.6	65.6	79.8	35
MM3Z75VT1G	1G	70	75	79	2	255	500	0.5	0.05	52.5	73.4	88.6	35

*Includes SZ-prefix devices where applicable.

2. Zener voltage is measured with a pulse test current I_Z at an ambient temperature of 25°C .

TYPICAL CHARACTERISTICS

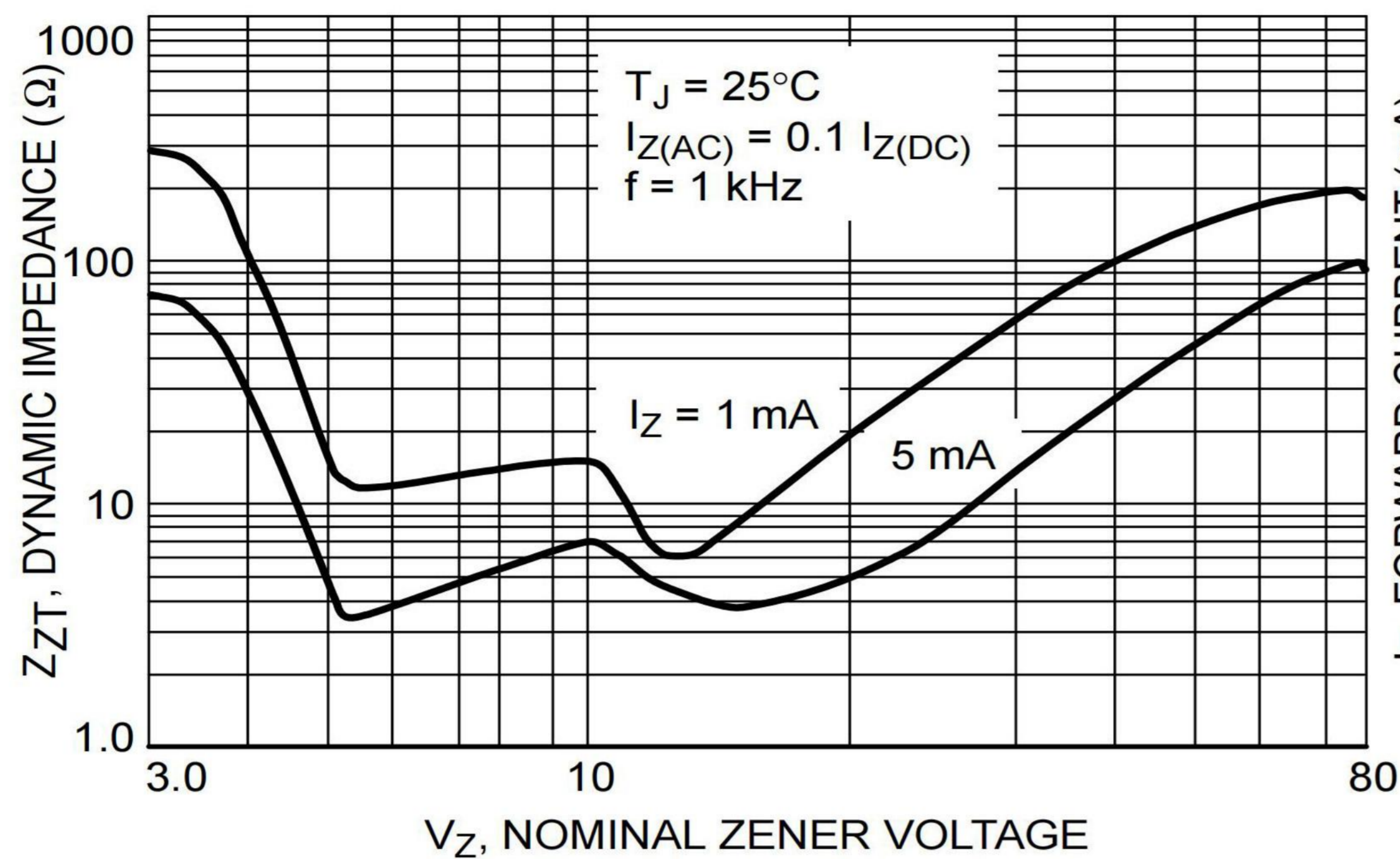


Figure 1. Effect of Zener Voltage on Zener Impedance

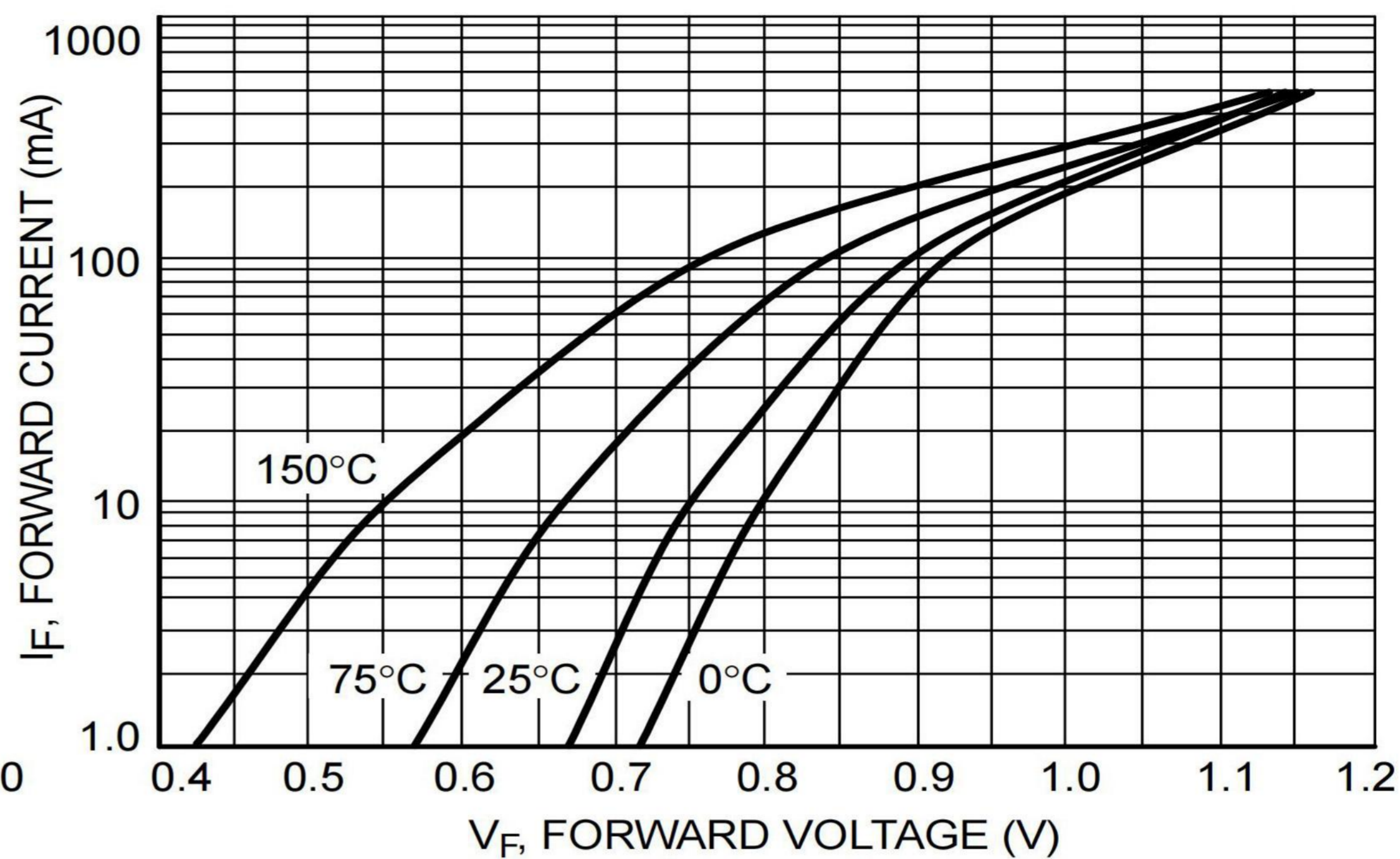


Figure 2. Typical Forward Voltage

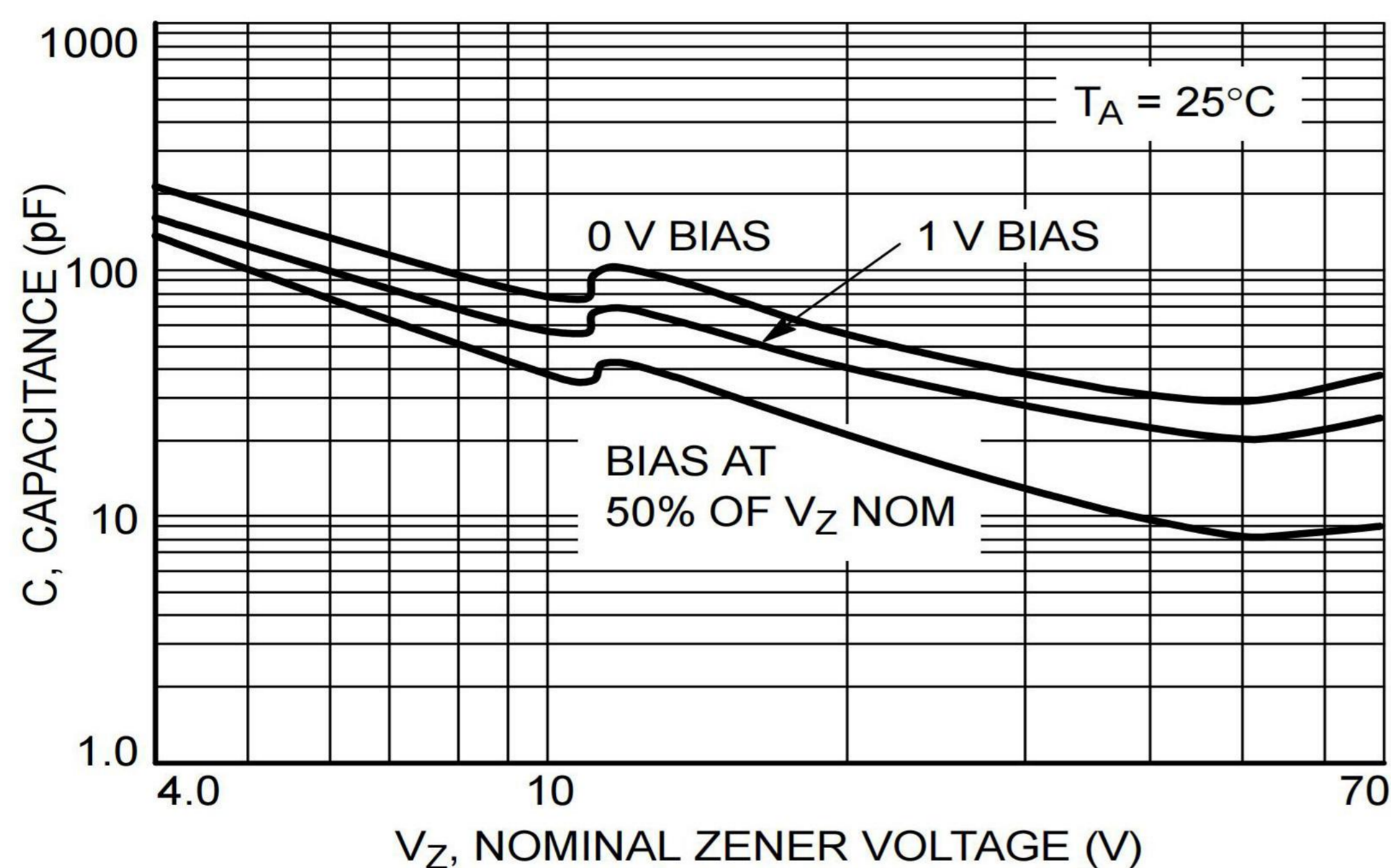


Figure 3. Typical Capacitance

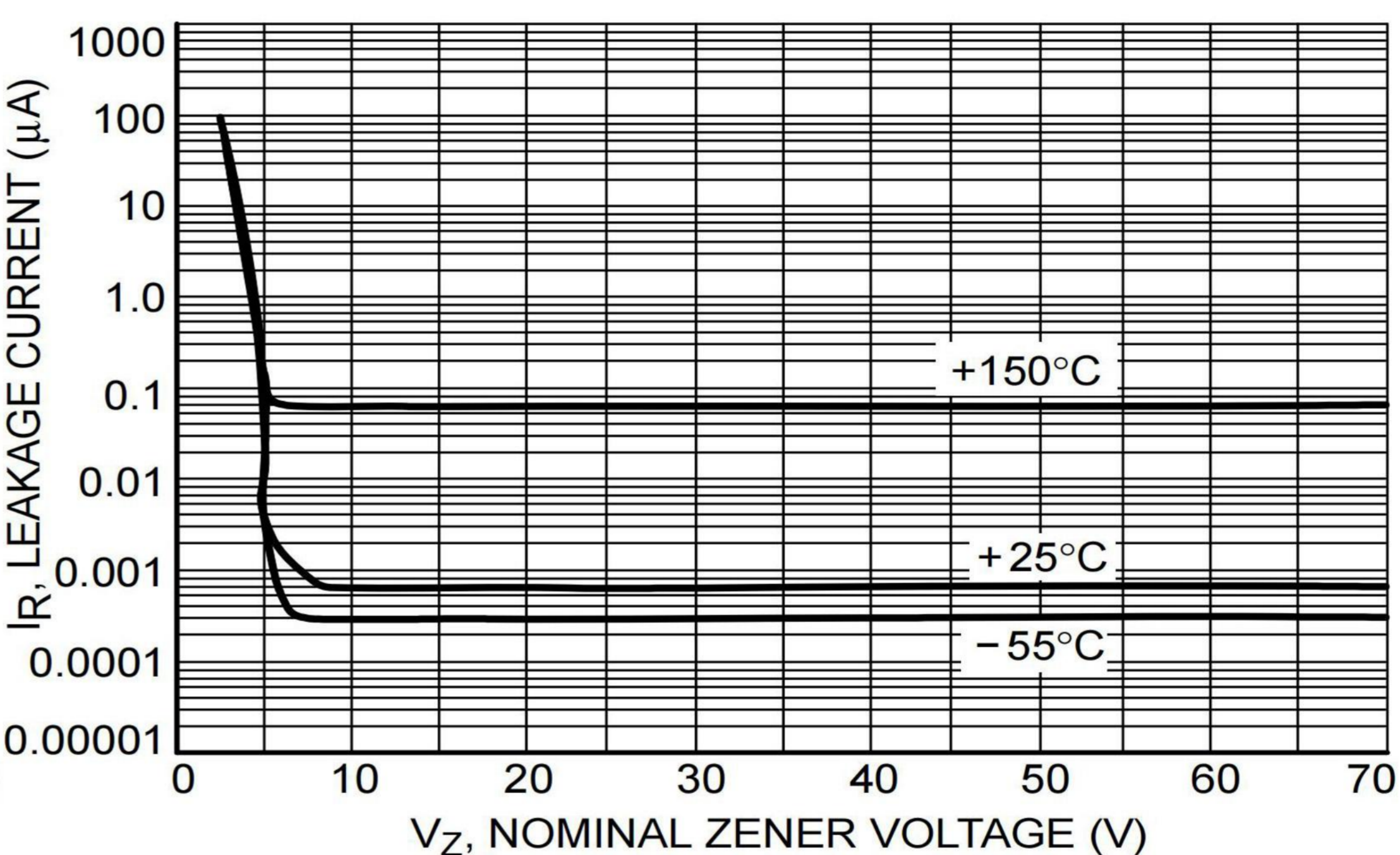


Figure 4. Typical Leakage Current

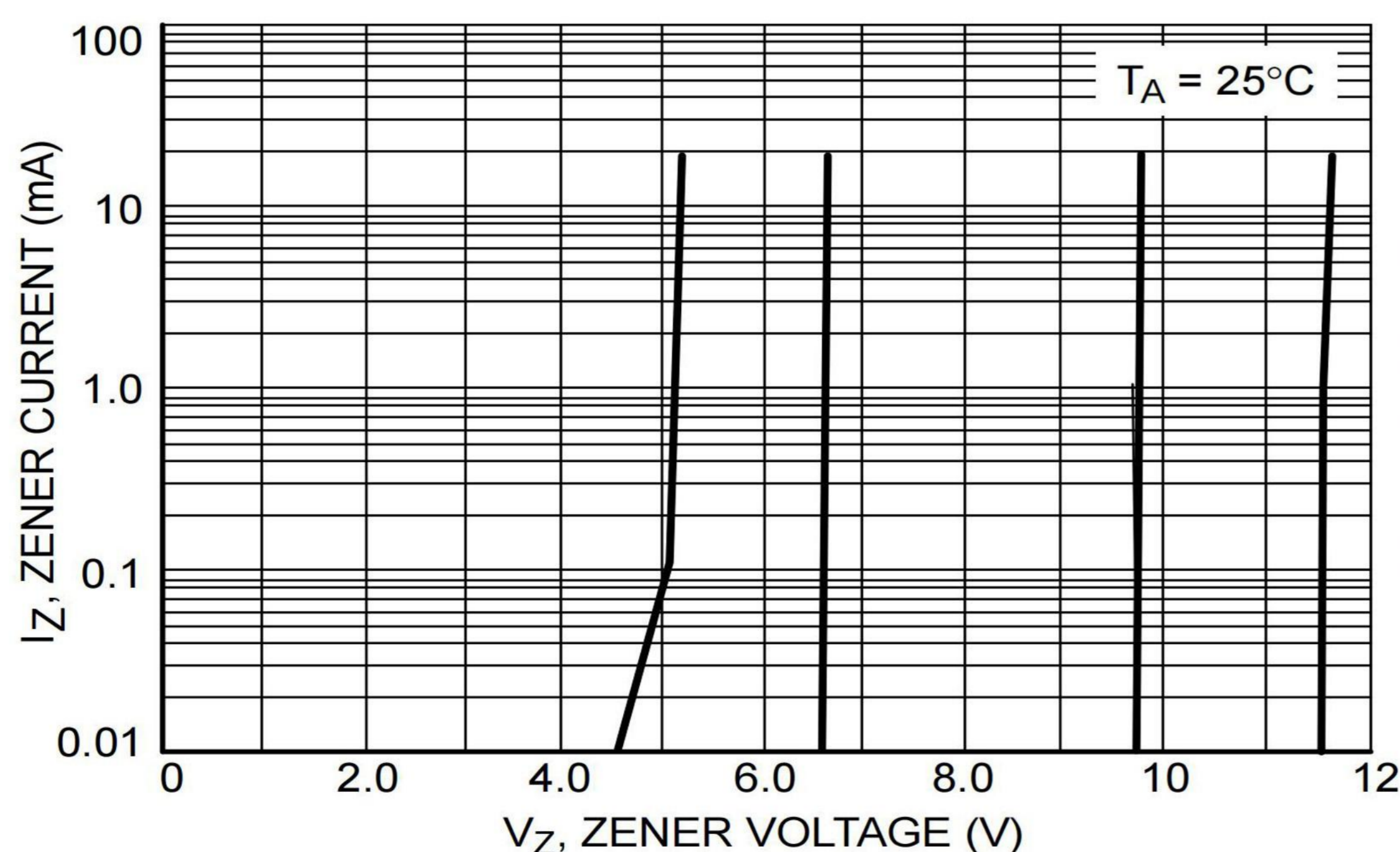


Figure 5. Zener Voltage versus Zener Current (V_Z Up to 12 V)

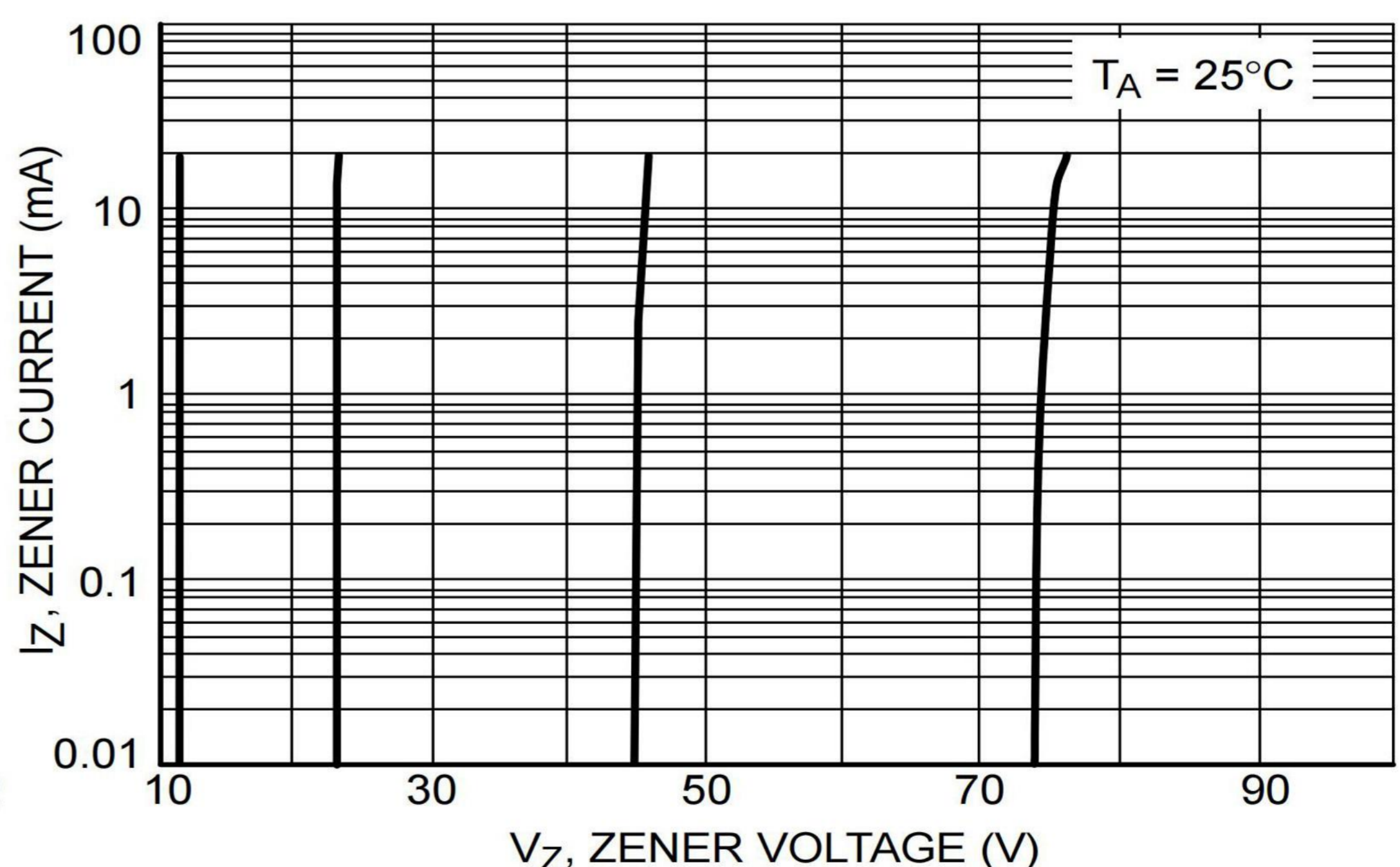


Figure 6. Zener Voltage versus Zener Current (12 V to 75 V)

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TYPICAL CHARACTERISTICS

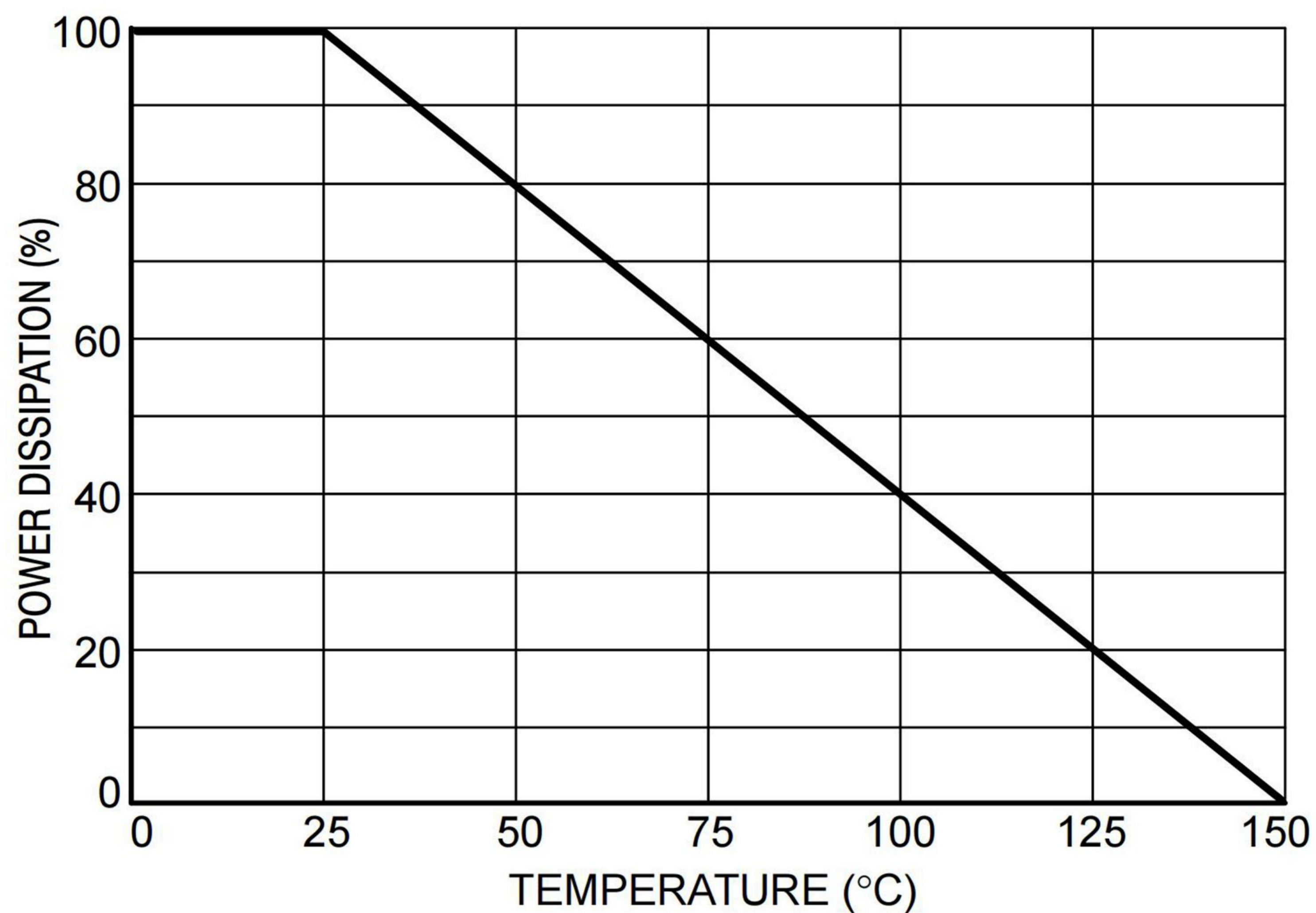


Figure 7. Steady State Power Derating

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Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-323	R1	0.0048	3000	30000	120000	7"

Package Outline Dimensions (SOD-323)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.60	1.80	0.063	0.071
B	0.25	0.40	0.010	0.016
C	2.30	2.80	0.091	0.110
D	0.80	1.10	0.031	0.043
D ₁	0.80	0.90	0.031	0.035
E	1.20	1.40	0.047	0.055
F	0.08	0.18	0.003	0.007
L	0.475REF		0.019REF	
L ₁	0.25	0.40	0.010	0.016
H	-	0.14	-	0.006

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.65	0.75	0.026	0.030
Y	0.65	0.75	0.026	0.030
Z	2.10	2.20	0.084	0.088