

1SMB5333B THRU 1SMB5388B

PowerDissipation 5 W
VOLTAGE 3.3 to 200 V

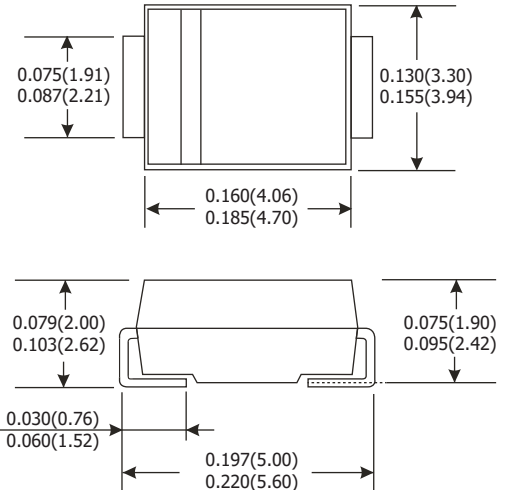
Features

- Glass Passivated Die Construction
- 5.0W Power Dissipation
- 3.3V – 200V Nominal Zener Voltage
- 5% Standard Vz Tolerance
- Low Inductance
- For Use in Voltage Regulator or Reference
- Plastic Case Material has UL Flammability Classification Rating 94V-0

Mechanical Data

- Case : SMB/DO-214AA, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band
- Marking: Device Code
- Weight: 0.093 grams (approx.)
- Lead Free: For RoHS / Lead Free Version

DO-214AA(SMB)



Dimensions in inches and (millimeters)

Maximum Ratings

(T_A = 25 °C unless otherwise noted)

Items	Symbols	Value	Units
Power dissipation at T _L = 75°C (Note 1)	P _D	5.0	W
Forward Voltage at I _F = 1.0A	V _F	1.2	V
Thermal Resistance, Junction to Ambient (Note 2)	R _{θJA}	90	°C/W
Thermal Resistance, Junction to Lead (Note 1)	R _{θJL}	25	
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

NOTES :

- (1) Mounted on FR-4 PCB with 8.0mm² copper pads to each terminal.
- (2) Mounted on ceramic substrate with minimum recommended pad layout.



RATINGS AND CHARACTERISTIC CURVES 1SMB5333B THRU 1SMB5388B

Electrical Characteristics

(TA = 25°C unless otherwise noted)

Type Number (Note 1)	Device Marking Code	Nominal Zener Voltage (Note 2)	Test Current	Maximum Zener Impedance (Note 3)			Maximum Leakage Current		Max DC Zener Current
		Vz @ IzT	IzT	ZzT @ IzT	Zzk @ Izk	Izk	Ir @ Vr		IzM
		(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
1SMB5333B	333B	3.3	380	3.0	400	1.0	300	1.0	1440.0
1SMB5334B	334B	3.6	350	2.5	500	1.0	150	1.0	1320.0
1SMB5335B	335B	3.9	320	2.0	500	1.0	50	1.0	1220.0
1SMB5336B	336B	4.3	290	2.0	500	1.0	10	1.0	1100.0
1SMB5337B	337B	4.7	260	2.0	450	1.0	5.0	1.0	1010.0
1SMB5338B	338B	5.1	240	1.5	400	1.0	1.0	1.0	930.0
1SMB5339B	339B	5.6	220	1.0	400	1.0	1.0	2.0	865.0
1SMB5340B	340B	6.0	200	1.0	300	1.0	1.0	3.0	790.0
1SMB5341B	341B	6.2	200	1.0	200	1.0	1.0	3.0	765.0
1SMB5342B	342B	6.8	175	1.0	200	1.0	10	5.2	700.0
1SMB5343B	343B	7.5	175	1.5	200	1.0	10	5.7	630.0
1SMB5344B	344B	8.2	150	1.5	200	1.0	10	6.2	580.0
1SMB5345B	345B	8.7	150	2.0	200	1.0	10	6.6	545.0
1SMB5346B	346B	9.1	150	2.0	150	1.0	7.5	6.9	520.0
1SMB5347B	347B	10	125	2.0	125	1.0	5.0	7.6	475.0
1SMB5348B	348B	11	125	2.5	125	1.0	5.0	8.4	430.0
1SMB5349B	349B	12	100	2.5	125	1.0	2.0	9.1	395.0
1SMB5350B	350B	13	100	2.5	100	1.0	1.0	9.9	365.0
1SMB5351B	351B	14	100	2.5	75	1.0	1.0	10.6	340.0
1SMB5352B	352B	15	75	2.5	75	1.0	1.0	11.5	315.0
1SMB5353B	353B	16	75	2.5	75	1.0	1.0	12.2	295.0
1SMB5354B	354B	17	70	2.5	75	1.0	0.5	12.9	280.0
1SMB5355B	355B	18	65	2.5	75	1.0	0.5	13.7	264.0
1SMB5356B	356B	19	65	3.0	75	1.0	0.5	14.4	250.0
1SMB5357B	357B	20	65	3.0	75	1.0	0.5	15.2	237.0
1SMB5358B	358B	22	50	3.5	75	1.0	0.5	16.7	216.0
1SMB5359B	359B	24	50	3.5	100	1.0	0.5	18.2	198.0
1SMB5360B	360B	25	50	4.0	110	1.0	0.5	19.0	190.0
1SMB5361B	361B	27	50	5.0	120	1.0	0.5	20.6	176.0
1SMB5362B	362B	28	50	6.0	130	1.0	0.5	21.2	170.0
1SMB5363B	363B	30	40	8.0	140	1.0	0.5	22.8	158.0
1SMB5364B	364B	33	40	10	150	1.0	0.5	25.1	144.0
1SMB5365B	365B	36	30	11	160	1.0	0.5	27.4	132.0
1SMB5366B	366B	39	30	14	170	1.0	0.5	29.7	122.0
1SMB5367B	367B	43	30	20	190	1.0	0.5	32.7	110.0
1SMB5368B	368B	47	25	25	210	1.0	0.5	35.8	100.0
1SMB5369B	369B	51	25	27	230	1.0	0.5	38.8	93.0



RATINGS AND CHARACTERISTIC CURVES 1SMB5333B THRU 1SMB5388B

Electrical Characteristics

(TA = 25°C unless otherwise noted)

Type Number (Note 1)	Device Marking Code	Nominal Zener Voltage (Note 2)	Test Current	Maximum Zener Impedance (Note 3)			Maximum Leakage Current		Max DC Zener Current
		Vz @ IzT	IzT	ZzT @ IzT	Zzk @ IzK	IzK	IR @ VR		IzM
		(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
1SMB5370B	370B	56	20	35	280	1.0	0.5	42.6	86.0
1SMB5371B	371B	60	20	40	350	1.0	0.5	45.5	79.0
1SMB5372B	372B	62	20	42	400	1.0	0.5	47.1	76.0
1SMB5373B	373B	68	20	44	500	1.0	0.5	51.7	70.0
1SMB5374B	374B	75	20	45	620	1.0	0.5	56.0	63.0
1SMB5375B	375B	82	15	65	720	1.0	0.5	62.2	58.0
1SMB5376B	376B	87	15	75	760	1.0	0.5	66.0	54.5
1SMB5377B	377B	91	15	75	760	1.0	0.5	69.2	52.5
1SMB5378B	378B	100	12	90	800	1.0	0.5	76.0	47.5
1SMB5379B	379B	110	12	125	1000	1.0	0.5	83.6	43.0
1SMB5380B	380B	120	10	170	1150	1.0	0.5	91.2	39.5
1SMB5381B	381B	130	10	190	1250	1.0	0.5	98.8	36.6
1SMB5382B	382B	140	8.0	230	1500	1.0	0.5	106.0	34.0
1SMB5383B	383B	150	8.0	330	1500	1.0	0.5	114.0	31.6
1SMB5384B	384B	160	8.0	350	1650	1.0	0.5	122.0	29.4
1SMB5385B	385B	170	8.0	380	1750	1.0	0.5	129.0	28.0
1SMB5386B	386B	180	5.0	430	1750	1.0	0.5	137.0	26.4
1SMB5387B	387B	190	5.0	450	1850	1.0	0.5	144.0	25.0
1SMB5388B	388B	200	5.0	480	1850	1.0	0.5	152.0	23.6

NOTES:

- (1) Type numbers listed have standard tolerance on the nominal zener voltage of ±5%.
- (2) Measured under thermal equilibrium and DC (IzT) test conditions.
- (3) The Zener impedance is derived from the 60Hz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (IzT or IzK) is superimposed on IzT or IzK. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

RATINGS AND CHARACTERISTIC CURVES 1SMB5333B THRU 1SMB5388B

FIG.1-POWER TEMPERATURE DERATING CURVE

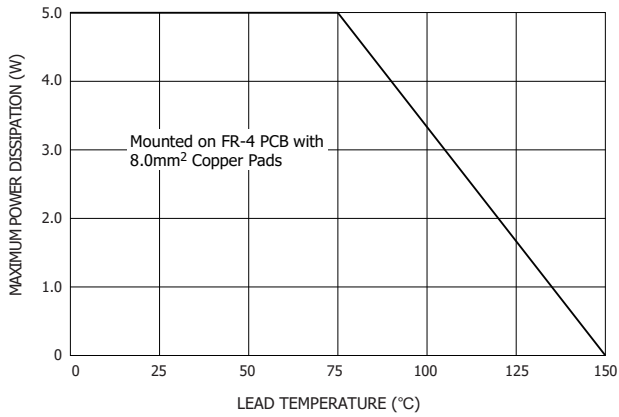


FIG.2-ZENER BREAKDOWN CHARACTERISTICS

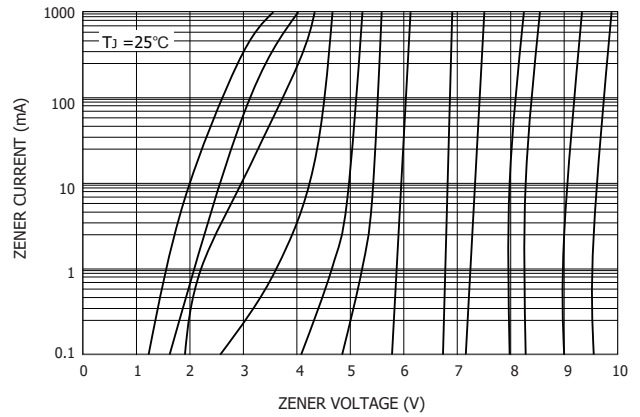


FIG.3-ZENER BREAKDOWN CHARACTERISTICS

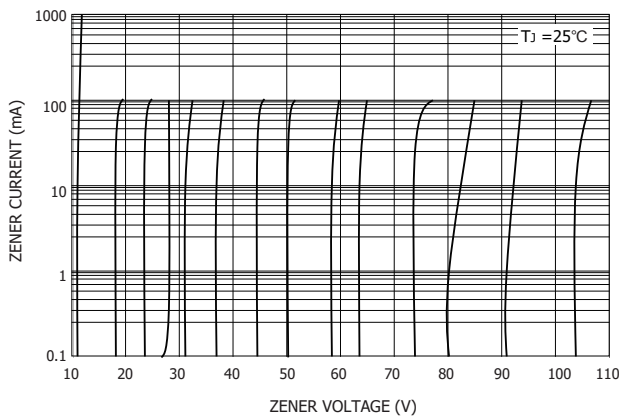


FIG.4-ZENER BREAKDOWN CHARACTERISTICS

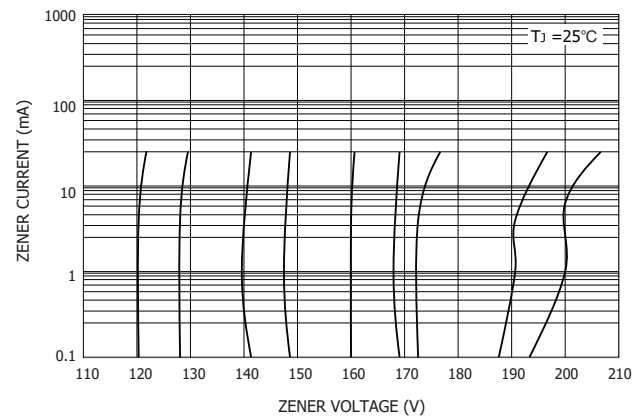


FIG.5-TYPICAL FORWARD CHARACTERISTICS

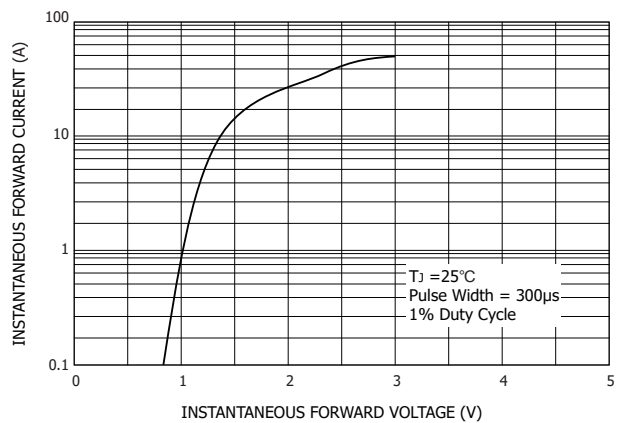
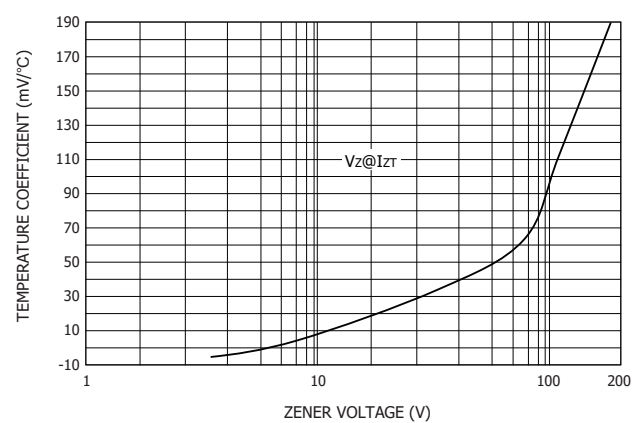


FIG.6-TYPICAL TEMPERATURE COEFFICIENTS





RATINGS AND CHARACTERISTIC CURVES 1SMB5333 THRU 1SMB5388

Electrical Characteristics

(TA = 25°C unless otherwise noted)

Type Number (Note 1)	Device Marking Code	Nominal Zener Voltage (Note 2)	Test Current	Maximum Zener Impedance (Note 3)			Maximum Leakage Current		Max DC Zener Current
		Vz @ IzT	IzT	ZzT @ IzT	Zzk @ Izk	Izk	Ir @ Vr		IzM
		(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
1SMB5333B	333B	3.3	380	3.0	400	1.0	300	1.0	1440.0
1SMB5334B	334B	3.6	350	2.5	500	1.0	150	1.0	1320.0
1SMB5335B	335B	3.9	320	2.0	500	1.0	50	1.0	1220.0
1SMB5336B	336B	4.3	290	2.0	500	1.0	10	1.0	1100.0
1SMB5337B	337B	4.7	260	2.0	450	1.0	5.0	1.0	1010.0
1SMB5338B	338B	5.1	240	1.5	400	1.0	1.0	1.0	930.0
1SMB5339B	339B	5.6	220	1.0	400	1.0	1.0	2.0	865.0
1SMB5340B	340B	6.0	200	1.0	300	1.0	1.0	3.0	790.0
1SMB5341B	341B	6.2	200	1.0	200	1.0	1.0	3.0	765.0
1SMB5342B	342B	6.8	175	1.0	200	1.0	10	5.2	700.0
1SMB5343B	343B	7.5	175	1.5	200	1.0	10	5.7	630.0
1SMB5344B	344B	8.2	150	1.5	200	1.0	10	6.2	580.0
1SMB5345B	345B	8.7	150	2.0	200	1.0	10	6.6	545.0
1SMB5346B	346B	9.1	150	2.0	150	1.0	7.5	6.9	520.0
1SMB5347B	347B	10	125	2.0	125	1.0	5.0	7.6	475.0
1SMB5348B	348B	11	125	2.5	125	1.0	5.0	8.4	430.0
1SMB5349B	349B	12	100	2.5	125	1.0	2.0	9.1	395.0
1SMB5350B	350B	13	100	2.5	100	1.0	1.0	9.9	365.0
1SMB5351B	351B	14	100	2.5	75	1.0	1.0	10.6	340.0
1SMB5352B	352B	15	75	2.5	75	1.0	1.0	11.5	315.0
1SMB5353B	353B	16	75	2.5	75	1.0	1.0	12.2	295.0
1SMB5354B	354B	17	70	2.5	75	1.0	0.5	12.9	280.0
1SMB5355B	355B	18	65	2.5	75	1.0	0.5	13.7	264.0
1SMB5356B	356B	19	65	3.0	75	1.0	0.5	14.4	250.0
1SMB5357B	357B	20	65	3.0	75	1.0	0.5	15.2	237.0
1SMB5358B	358B	22	50	3.5	75	1.0	0.5	16.7	216.0
1SMB5359B	359B	24	50	3.5	100	1.0	0.5	18.2	198.0
1SMB5360B	360B	25	50	4.0	110	1.0	0.5	19.0	190.0
1SMB5361B	361B	27	50	5.0	120	1.0	0.5	20.6	176.0
1SMB5362B	362B	28	50	6.0	130	1.0	0.5	21.2	170.0
1SMB5363B	363B	30	40	8.0	140	1.0	0.5	22.8	158.0
1SMB5364B	364B	33	40	10	150	1.0	0.5	25.1	144.0
1SMB5365B	365B	36	30	11	160	1.0	0.5	27.4	132.0
1SMB5366B	366B	39	30	14	170	1.0	0.5	29.7	122.0
1SMB5367B	367B	43	30	20	190	1.0	0.5	32.7	110.0
1SMB5368B	368B	47	25	25	210	1.0	0.5	35.8	100.0
1SMB5369B	369B	51	25	27	230	1.0	0.5	38.8	93.0



RATINGS AND CHARACTERISTIC CURVES 1SMB5333 THRU 1SMB5388

Electrical Characteristics

(TA = 25°C unless otherwise noted)

Type Number (Note 1)	Device Marking Code	Nominal Zener Voltage (Note 2)	Test Current	Maximum Zener Impedance (Note 3)			Maximum Leakage Current		Max DC Zener Current
		Vz @ IzT	IzT	ZzT @ IzT	Zzk @ IzK	IzK	IR @ VR		IzM
		(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
1SMB5370B	370B	56	20	35	280	1.0	0.5	42.6	86.0
1SMB5371B	371B	60	20	40	350	1.0	0.5	45.5	79.0
1SMB5372B	372B	62	20	42	400	1.0	0.5	47.1	76.0
1SMB5373B	373B	68	20	44	500	1.0	0.5	51.7	70.0
1SMB5374B	374B	75	20	45	620	1.0	0.5	56.0	63.0
1SMB5375B	375B	82	15	65	720	1.0	0.5	62.2	58.0
1SMB5376B	376B	87	15	75	760	1.0	0.5	66.0	54.5
1SMB5377B	377B	91	15	75	760	1.0	0.5	69.2	52.5
1SMB5378B	378B	100	12	90	800	1.0	0.5	76.0	47.5
1SMB5379B	379B	110	12	125	1000	1.0	0.5	83.6	43.0
1SMB5380B	380B	120	10	170	1150	1.0	0.5	91.2	39.5
1SMB5381B	381B	130	10	190	1250	1.0	0.5	98.8	36.6
1SMB5382B	382B	140	8.0	230	1500	1.0	0.5	106.0	34.0
1SMB5383B	383B	150	8.0	330	1500	1.0	0.5	114.0	31.6
1SMB5384B	384B	160	8.0	350	1650	1.0	0.5	122.0	29.4
1SMB5385B	385B	170	8.0	380	1750	1.0	0.5	129.0	28.0
1SMB5386B	386B	180	5.0	430	1750	1.0	0.5	137.0	26.4
1SMB5387B	387B	190	5.0	450	1850	1.0	0.5	144.0	25.0
1SMB5388B	388B	200	5.0	480	1850	1.0	0.5	152.0	23.6

NOTES:

- (1) Type numbers listed have standard tolerance on the nominal zener voltage of $\pm 5\%$.
- (2) Measured under thermal equilibrium and DC (I_{zT}) test conditions.
- (3) The Zener impedance is derived from the 60Hz AC voltage which results when an AC current having an RMS value equal to 10% of the Zener current (I_{zT} or I_{zK}) is superimposed on I_{zT} or I_{zK} . Zener impedance is measured at two points to insure a sharp knee on the breakdown curve and to eliminate unstable units.

RATINGS AND CHARACTERISTIC CURVES 1SMB5333 THRU 1SMB5388

FIG.1-POWER TEMPERATURE DERATING CURVE

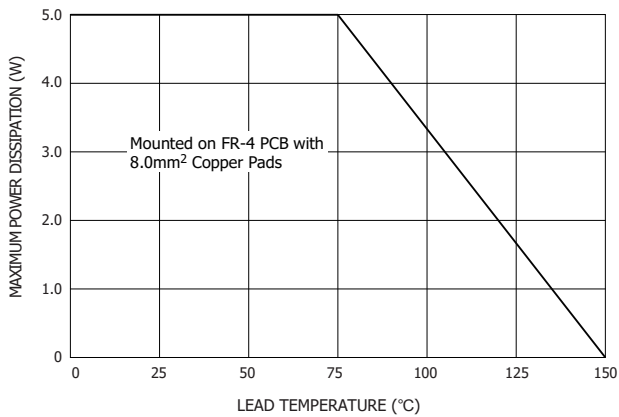


FIG.2-ZENER BREAKDOWN CHARACTERISTICS

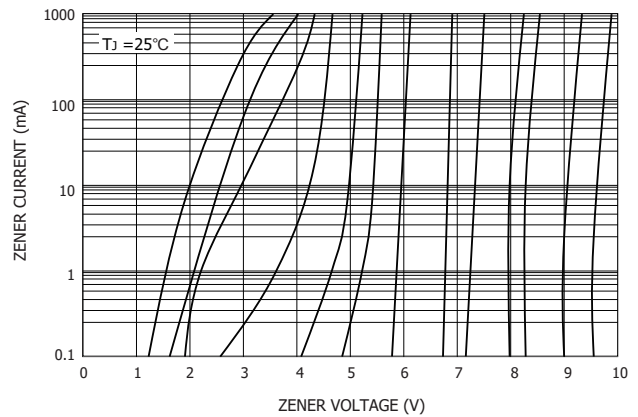


FIG.3-ZENER BREAKDOWN CHARACTERISTICS

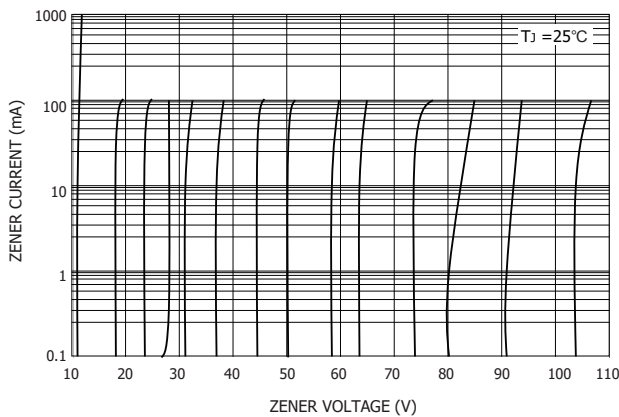


FIG.4-ZENER BREAKDOWN CHARACTERISTICS

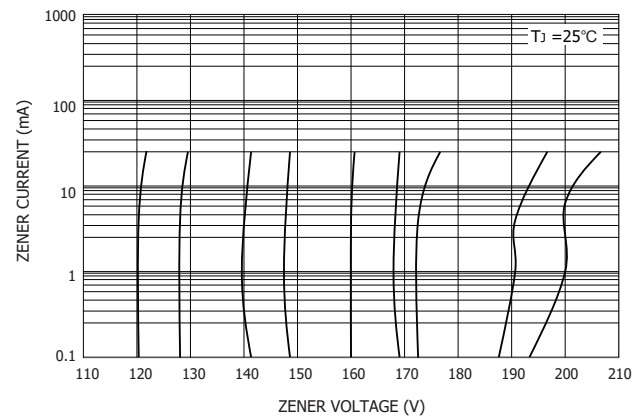


FIG.5-TYPICAL FORWARD CHARACTERISTICS

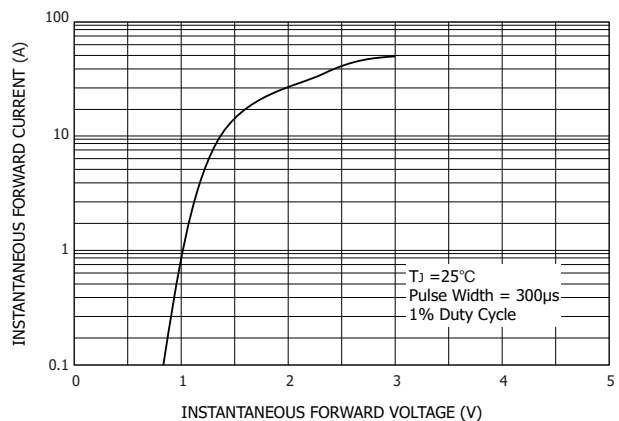


FIG.6-TYPICAL TEMPERATURE COEFFICIENTS

