

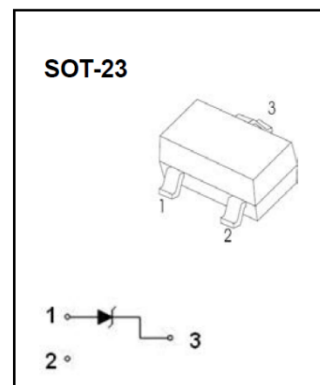


## AD-MMBZ52\* series Plastic-Encapsulated Transistor

AD-MMBZ52\* series ZENER DIODE

### FEATURES

- Planar die construction
- General purpose, medium current
- Ideally suited for automated assembly
- AEC-Q101 qualified



**MAXIMUM RATINGS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Forward Voltage @ $I_F = 10\text{mA}$	$V_F$	0.9	V
Power dissipation	$P_D$	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Operating junction and storage temperature range	$T_j, T_{stg}$	-55 ~ 150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)**

Type Number	Marking Code	Zener Voltage Range <sup>1)</sup>			Test Current	Maximum Zener Impedance <sup>2)</sup>		Maximum Reverse Leakage Current <sup>1)</sup>	
		$V_z @ I_{zT}$ (V)				$I_{zT}$	$Z_{zT} @ I_{zT}$	$Z_{zK} @ I_{zK} = 0.25\text{mA}$	$I_R$
		Nom	Min	Max	mA	$\Omega$		$\mu\text{A}$	V
AD-MMBZ5221B	$\bar{K}C1$	2.4	2.28	2.52	20	30	1200	100	1.0
AD-MMBZ5222B	$\bar{K}C2$	2.5	2.38	2.63	20	30	1250	100	1.0
AD-MMBZ5223B	$\bar{K}C3$	2.7	2.57	2.84	20	30	1300	75	1.0
AD-MMBZ5225B	$\bar{K}C5$	3.0	2.85	3.15	20	30	1600	50	1.0
AD-MMBZ5226B	$\bar{K}G1$	3.3	3.14	3.47	20	28	1600	25	1.0
AD-MMBZ5227B	$\bar{K}G2$	3.6	3.42	3.78	20	24	1700	15	1.0
AD-MMBZ5228B	$\bar{K}G3$	3.9	3.71	4.10	20	23	1900	10	1.0
AD-MMBZ5229B	$\bar{K}G4$	4.3	4.09	4.52	20	22	2000	5.0	1.0
AD-MMBZ5230B	$\bar{K}G5$	4.7	4.47	4.94	20	19	1900	5.0	2.0
AD-MMBZ5231B	$\bar{K}E1$	5.1	4.85	5.36	20	17	1600	5.0	2.0
AD-MMBZ5232B	$\bar{K}E2$	5.6	5.32	5.88	20	11	1600	5.0	3.0
AD-MMBZ5233B	$\bar{K}E3$	6.0	5.70	6.30	20	7	1600	5.0	3.5
AD-MMBZ5234B	$\bar{K}E4$	6.2	5.89	6.51	20	7	1000	5.0	4.0
AD-MMBZ5235B	$\bar{K}E5$	6.8	6.46	7.14	20	5	750	3.0	5.0
AD-MMBZ5236B	$\bar{K}F1$	7.5	7.13	7.88	20	6	500	3.0	6.0
AD-MMBZ5237B	$\bar{K}F2$	8.2	7.79	8.61	20	8	500	3.0	6.5
AD-MMBZ5238B	$\bar{K}F3$	8.7	8.27	9.14	20	8	600	3.0	6.5
AD-MMBZ5239B	$\bar{K}F4$	9.1	8.65	9.56	20	10	600	3.0	7.0
AD-MMBZ5240B	$\bar{K}F5$	10	9.50	10.50	20	17	600	3.0	8.0
AD-MMBZ5241B	$\bar{K}H1$	11	10.45	11.55	20	22	600	2.0	8.4
AD-MMBZ5242B	$\bar{K}H2$	12	11.40	12.60	20	30	600	1.0	9.1
AD-MMBZ5243B	$\bar{K}H3$	13	12.35	13.65	9.5	13	600	0.5	9.9
AD-MMBZ5244B	$\bar{K}H4$	14	13.30	14.70	9.0	15	600	0.1	10
AD-MMBZ5245B	$\bar{K}H5$	15	14.25	15.75	8.5	16	600	0.1	11
AD-MMBZ5246B	$\bar{K}J1$	16	15.20	16.80	7.8	17	600	0.1	12

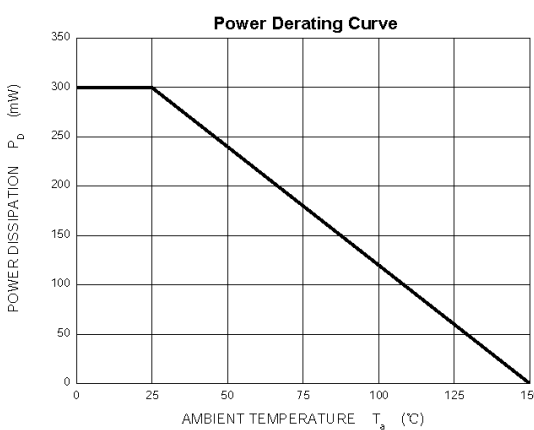
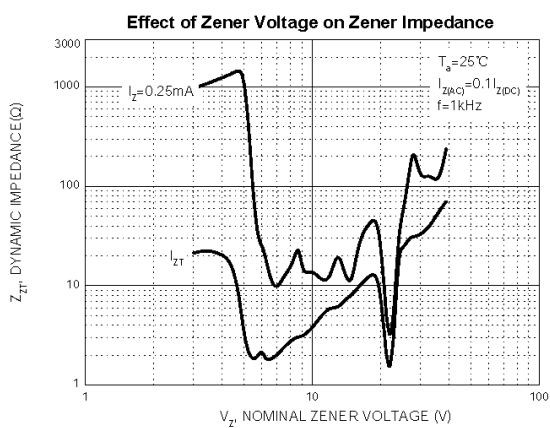
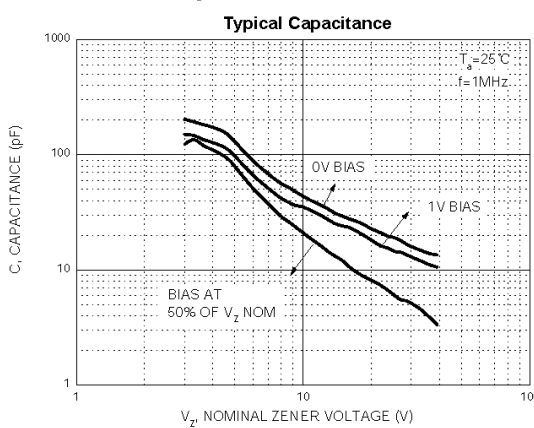
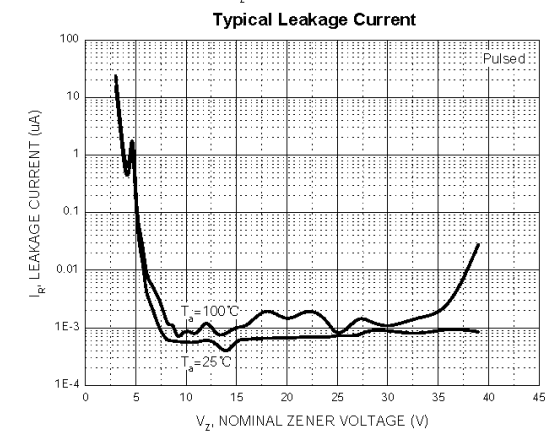
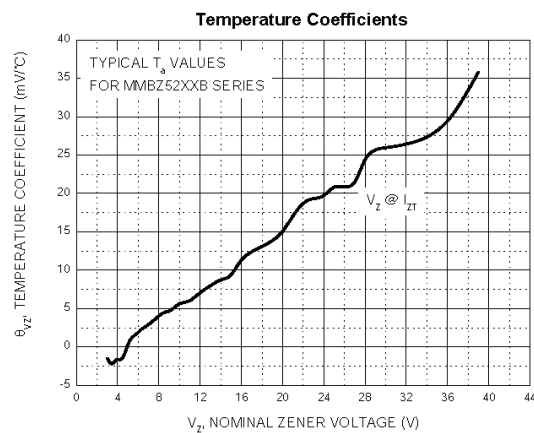
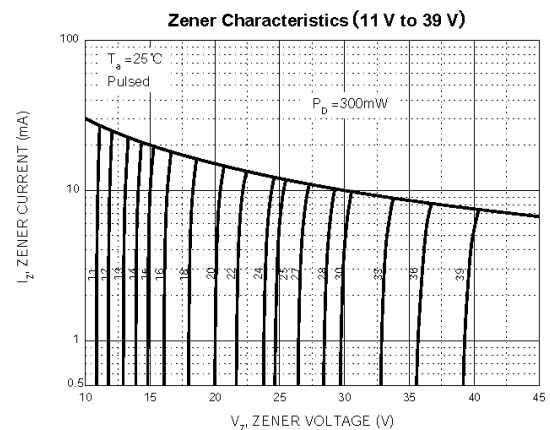
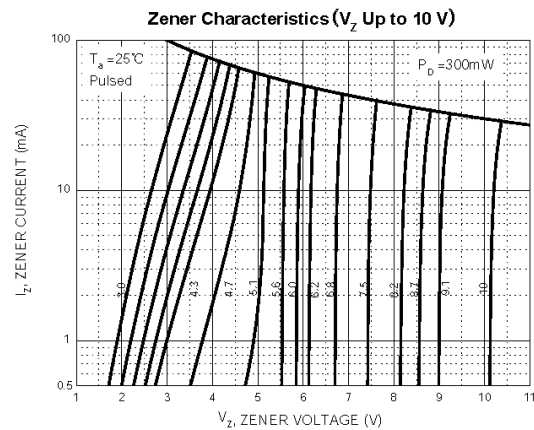
AD-MMBZ5247B	$\bar{K}J2$	17	16.15	17.85	7.4	19	600	0.1	13
AD-MMBZ5248B	$\bar{K}J3$	18	17.10	18.90	7.0	21	600	0.1	14
AD-MMBZ5249B	$\bar{K}J4$	19	18.05	19.95	6.6	23	600	0.1	14
AD-MMBZ5250B	$\bar{K}J5$	20	19.00	21.00	6.2	25	600	0.1	15
AD-MMBZ5251B	$\bar{K}K1$	22	20.90	23.10	5.6	29	600	0.1	17
AD-MMBZ5252B	$\bar{K}K2$	24	22.80	25.20	5.2	33	600	0.1	18
AD-MMBZ5253B	$\bar{K}K3$	25	23.75	26.25	5.0	35	600	0.1	19
AD-MMBZ5254B	$\bar{K}K4$	27	25.65	28.35	5.0	41	600	0.1	21
AD-MMBZ5255B	$\bar{K}K5$	28	26.60	29.40	4.5	44	600	0.1	21
AD-MMBZ5256B	$\bar{K}M1$	30	28.50	31.50	4.2	49	600	0.1	23
AD-MMBZ5257B	$\bar{K}M2$	33	31.35	34.65	3.8	58	700	0.1	25
AD-MMBZ5258B	$\bar{K}M3$	36	34.20	37.80	3.4	70	700	0.1	27
AD-MMBZ5259B	$\bar{K}M4$	39	37.05	40.95	3.2	80	800	0.1	30

1) Short duration test pulse used to minimize self-heating effect.

2)  $f = 1\text{kHz}$ .

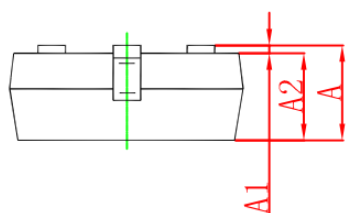
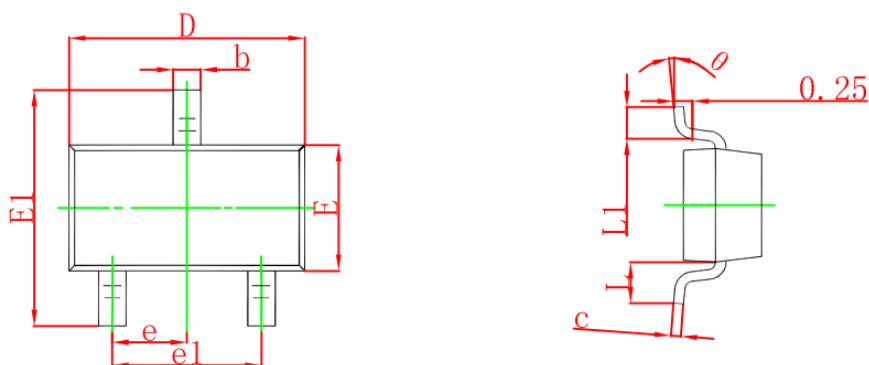
# TYPICAL CHARACTERISTICS

Notes: Our company currently provide 3.0V-39V products only



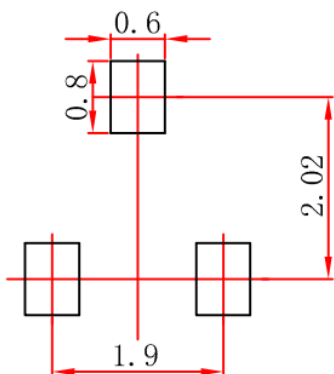
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### SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

### SOT-23 SUGGESTED PAD LAYOUT

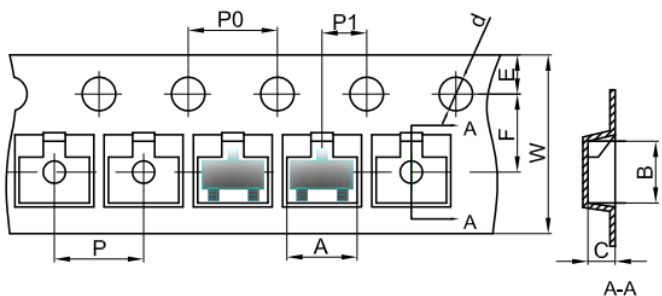


Note:

1. Controlling dimension in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purpose only.

### SOT-23 TAPE AND REEL

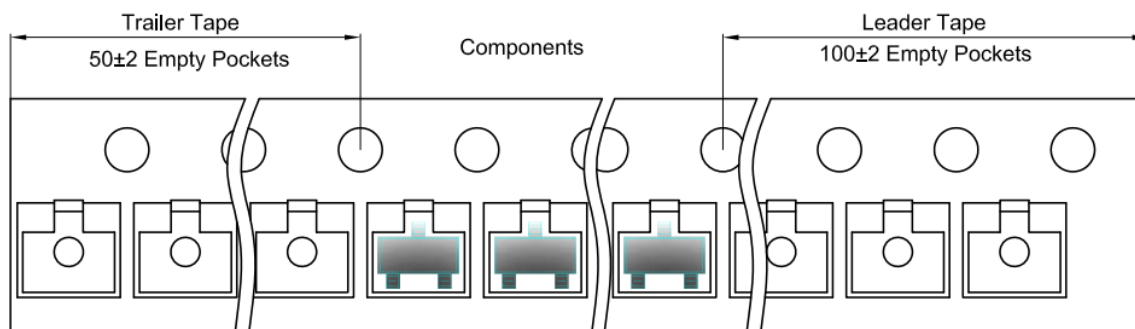
#### SOT-23 Embossed Carrier Tape



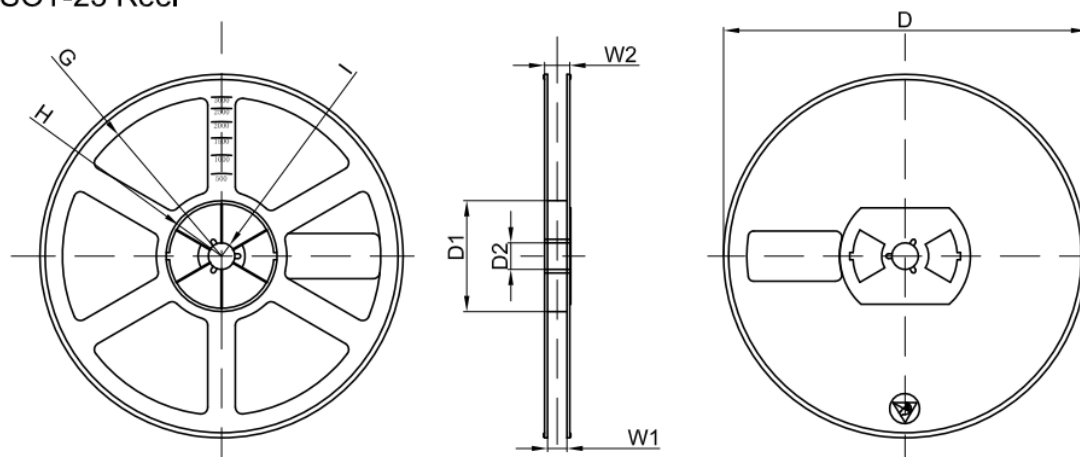
**Packaging Description:**  
 SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are In millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

#### SOT-23 Tape Leader and Trailer



#### SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

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