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SEMICONDUCTOR



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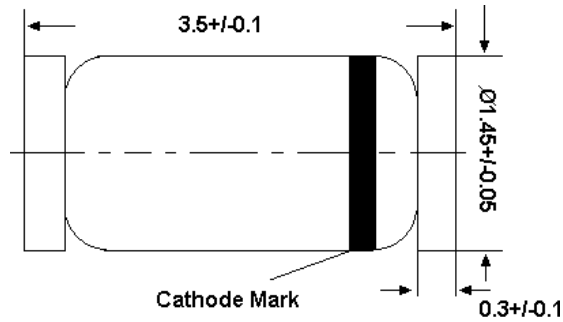
PLED

## ZMM2V0-MS THRU ZMM75-MS

Product specification

## Silicon Epitaxial Planar Zener Diodes

in MiniMELF case especially for automatic insertion. The Zener voltages are graded according to the international E24 standard. Smaller voltage tolerances and higher Zener voltages are upon request.



**Glass case MiniMELF**  
**Dimensions in mm**

## REEL SPECIFICATION

P/N	PKG	QTY
ZMM2V0-MS THRU ZMM75-MS	LL34	2500

## Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Power Dissipation	$P_{tot}$	500 <sup>1)</sup>	mW
Junction Temperature	$T_j$	175	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 175	$^\circ\text{C}$
<sup>1)</sup> Valid provided that electrodes are kept at ambient temperature			

## Characteristics at $T_a = 25^\circ\text{C}$

Thermal Resistance Junction to Ambient Air	$R_{thA}$	0.3 <sup>1)</sup>	K/mW
Forward Voltage at $I_F = 100 \text{ mA}$	$V_F$	1	V
<sup>1)</sup> Valid provided that electrodes are kept at ambient temperature			

**Characteristics at Ta = 25°C**

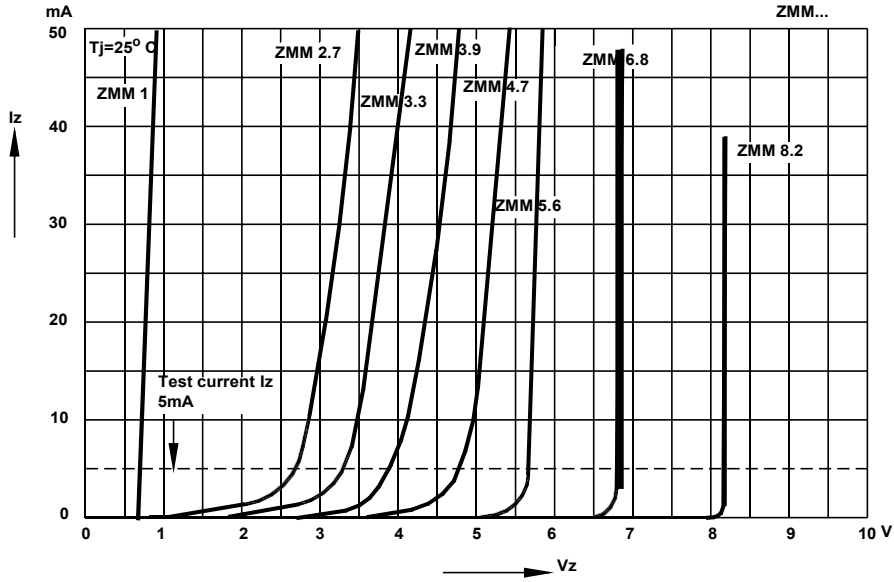
P/N	Zener Voltage Range <sup>1)</sup>			Dynamic Resistance			Reverse Leakage Current			Temp. Coefficient of Zener Voltage TKvz (%/K)
	V <sub>Zno</sub> <sub>m</sub>	V <sub>ZT</sub>	at I <sub>ZT</sub>	Z <sub>ZT</sub>	Z <sub>ZK</sub>	at I <sub>ZK</sub>	T <sub>a</sub> = 25°C	T <sub>a</sub> = 125°C	at V <sub>R</sub>	
	(V)	(V)	(mA)	Max. (Ω)	Max. (Ω)	(mA)	Max. (μA)	Max. (μA)	(V)	
ZMM2V0-MS	2.0	1.8...2.15	5	85	600	1	100	200	1	-0.09...-0.06
ZMM2V2-MS	2.2	2.08...2.33	5	85	600	1	75	160	1	-0.09...-0.06
ZMM2V4-MS	2.4	2.28...2.56	5	85	600	1	50	100	1	-0.09...-0.06
ZMM2V7-MS	2.7	2.5...2.9	5	85	600	1	10	50	1	-0.09...-0.06
ZMM3V0-MS	3.0	2.8...3.2	5	85	600	1	4	40	1	-0.08...-0.05
ZMM3V3-MS	3.3	3.1...3.5	5	85	600	1	2	40	1	-0.08...-0.05
ZMM3V6-MS	3.6	3.4...3.8	5	85	600	1	2	40	1	-0.08...-0.05
ZMM3V9-MS	3.9	3.7...4.1	5	85	600	1	2	40	1	-0.08...-0.05
ZMM4V3-MS	4.3	4...4.6	5	75	600	1	1	20	1	-0.06...-0.03
ZMM4V7-MS	4.7	4.4...5	5	60	600	1	0.5	10	1	-0.05...+0.02
ZMM5V1-MS	5.1	4.8...5.4	5	35	550	1	0.1	2	1	-0.02...+0.02
ZMM5V6-MS	5.6	5.2...6	5	25	450	1	0.1	2	1	-0.05...+0.05
ZMM6V2-MS	6.2	5.8...6.6	5	10	200	1	0.1	2	2	0.03...0.06
ZMM6V8-MS	6.8	6.4...7.2	5	8	150	1	0.1	2	3	0.03...0.07
ZMM7V5-MS	7.5	7...7.9	5	7	50	1	0.1	2	5	0.03...0.07
ZMM8V2-MS	8.2	7.7...8.7	5	7	50	1	0.1	2	6.2	0.03...0.08
ZMM9V1-MS	9.1	8.5...9.6	5	10	50	1	0.1	2	6.8	0.03...0.09
ZMM10-MS	10	9.4...10.6	5	15	70	1	0.1	2	7.5	0.03...0.1
ZMM11-MS	11	10.4...11.6	5	20	70	1	0.1	2	8.2	0.03...0.11
ZMM12-MS	12	11.4...12.7	5	20	90	1	0.1	2	9.1	0.03...0.11
ZMM13-MS	13	12.4...14.1	5	26	110	1	0.1	2	10	0.03...0.11
ZMM15-MS	15	13.8...15.6	5	30	110	1	0.1	2	11	0.03...0.11
ZMM16-MS	16	15.3...17.1	5	40	170	1	0.1	2	12	0.03...0.11
ZMM18-MS	18	16.8...19.1	5	50	170	1	0.1	2	13	0.03...0.11
ZMM20-MS	20	18.8...21.2	5	55	220	1	0.1	2	15	0.03...0.11
ZMM22-MS	22	20.8...23.3	5	55	220	1	0.1	2	16	0.04...0.12
ZMM24-MS	24	22.8...25.6	5	80	220	1	0.1	2	18	0.04...0.12
ZMM27-MS	27	25.1...28.9	5	80	220	1	0.1	2	20	0.04...0.12
ZMM30-MS	30	28...32	5	80	220	1	0.1	2	22	0.04...0.12
ZMM33-MS	33	31...35	5	80	220	1	0.1	2	24	0.04...0.12
ZMM36-MS	36	34...38	5	80	220	1	0.1	2	27	0.04...0.12
ZMM39-MS	39	37...41	2.5	90	500	0.5	0.1	5	30	0.04...0.12
ZMM43-MS	43	40...46	2.5	90	500	0.5	0.1	5	33	0.04...0.12
ZMM47-MS	47	44...50	2.5	110	600	0.5	0.1	5	36	0.04...0.12
ZMM51-MS	51	48...54	2.5	125	700	0.5	0.1	10	39	0.04...0.12
ZMM56-MS	56	52...60	2.5	135	700	0.5	0.1	10	43	0.04...0.12
ZMM62-MS	62	58...66	2.5	150	1000	0.5	0.1	10	47	0.04...0.12
ZMM68-MS	68	64...72	2.5	200	1000	0.5	0.1	10	51	0.04...0.12
ZMM75-MS	75	70...79	2.5	250	1000	0.5	0.1	10	56	0.04...0.12

1) Tested with pulses t<sub>p</sub> = 20 ms.

2) The ZMM1 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z". Connect the cathode electrode to the negative pole.

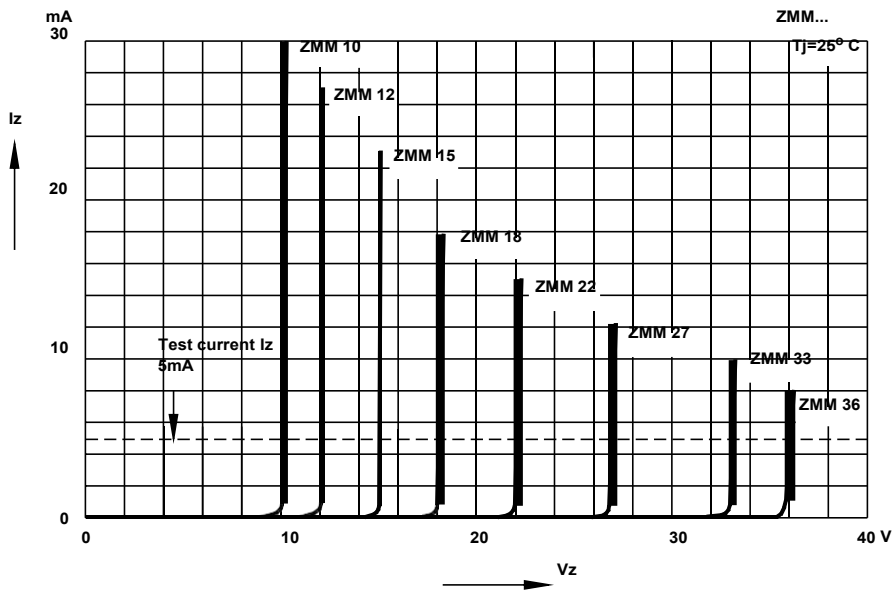
**Breakdown characteristics**

$T_j = \text{constant (pulsed)}$

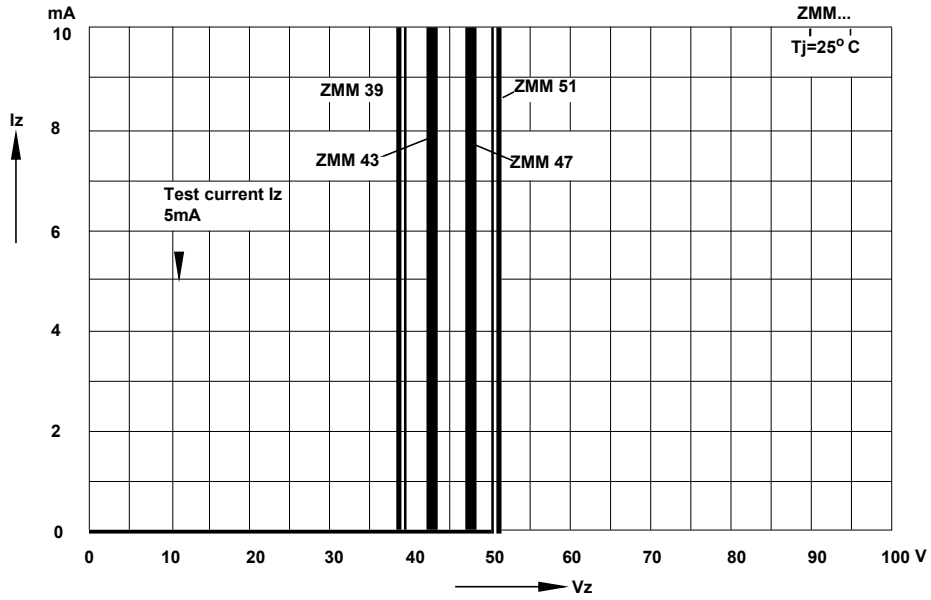


**Breakdown characteristics**

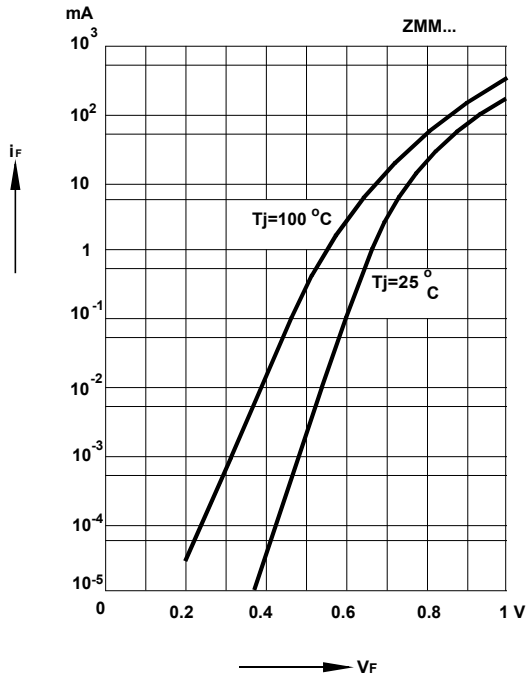
$T_j = \text{constant (pulsed)}$



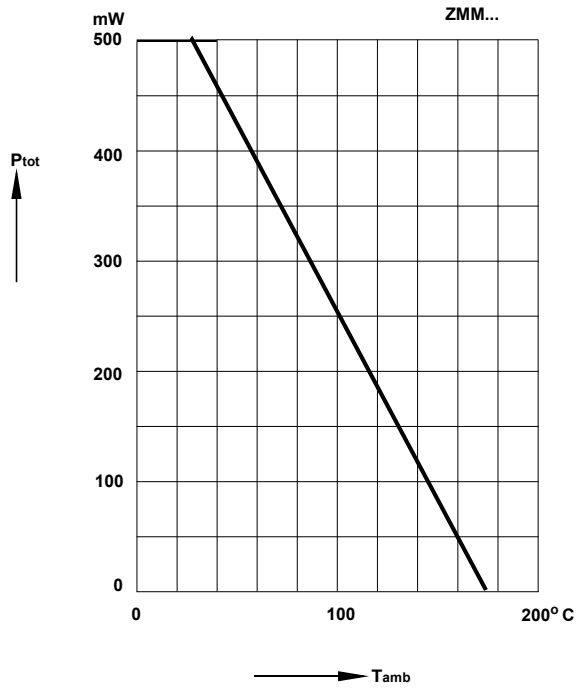
**Breakdown characteristics**  
 $T_j = \text{constant (pulsed)}$

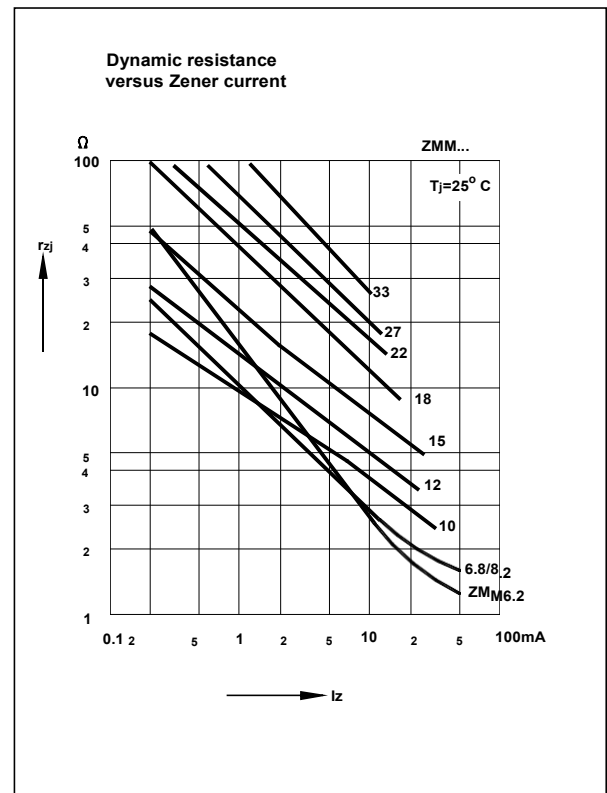
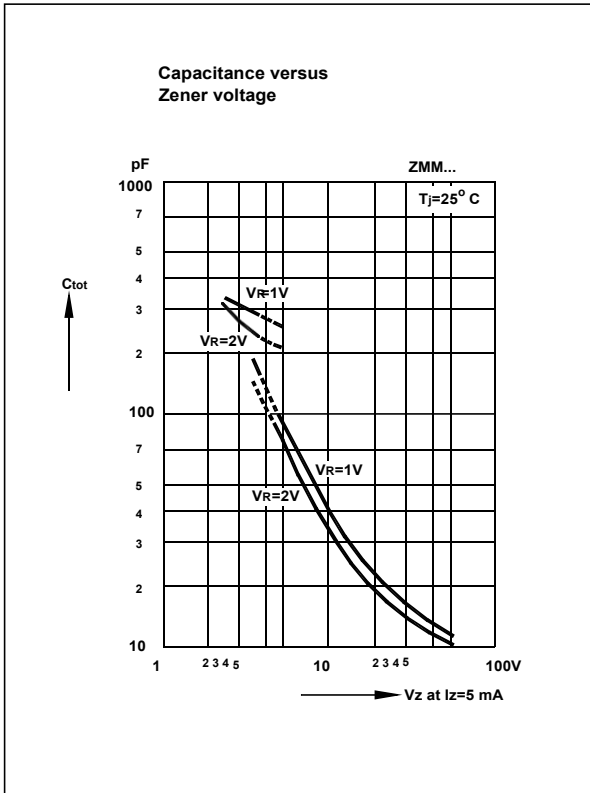
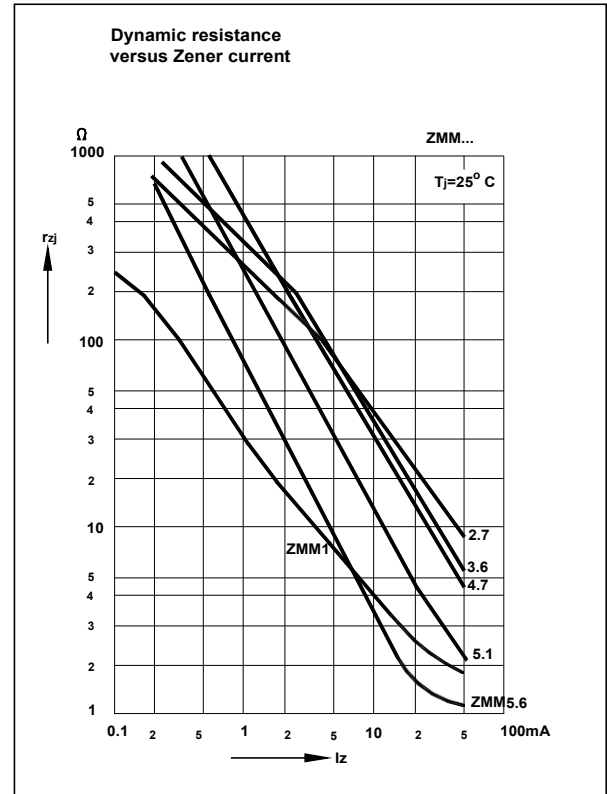
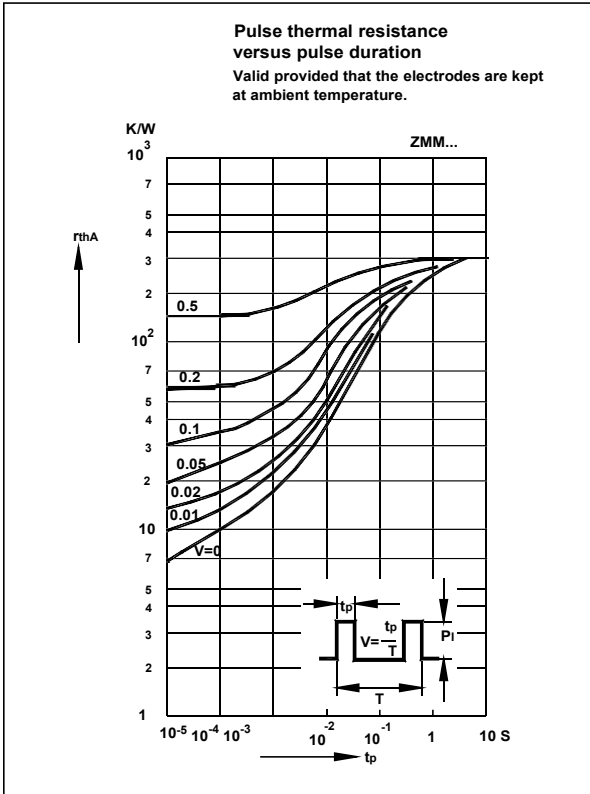


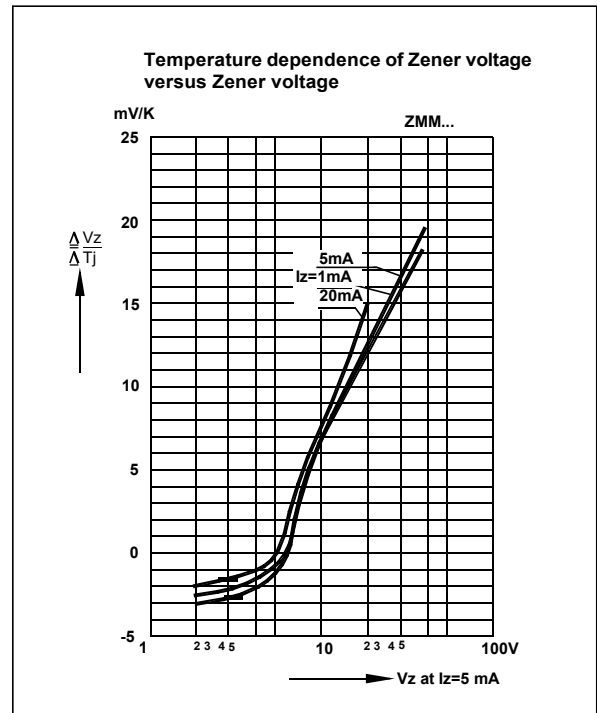
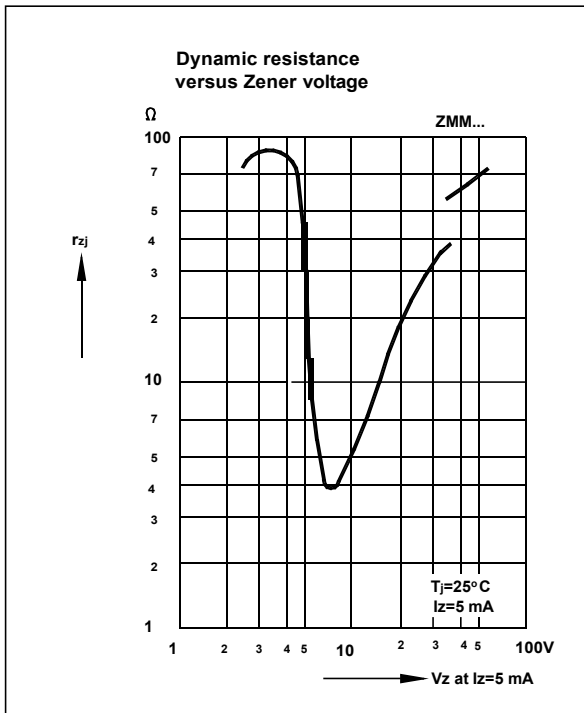
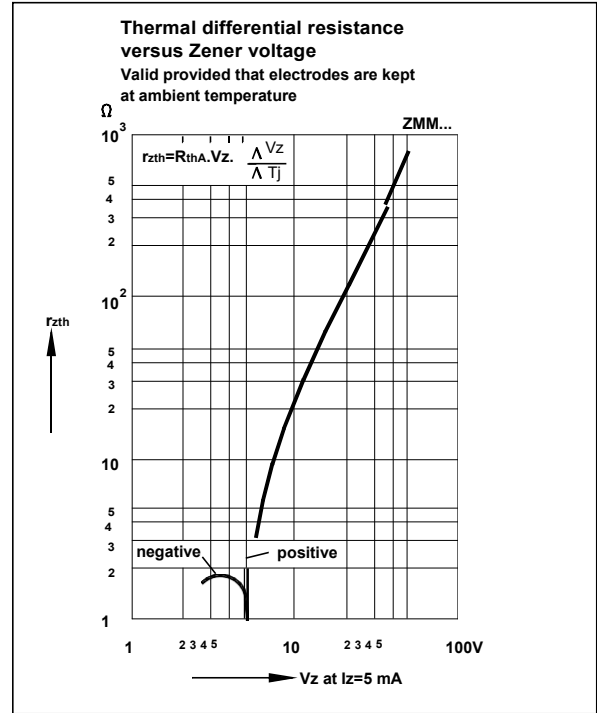
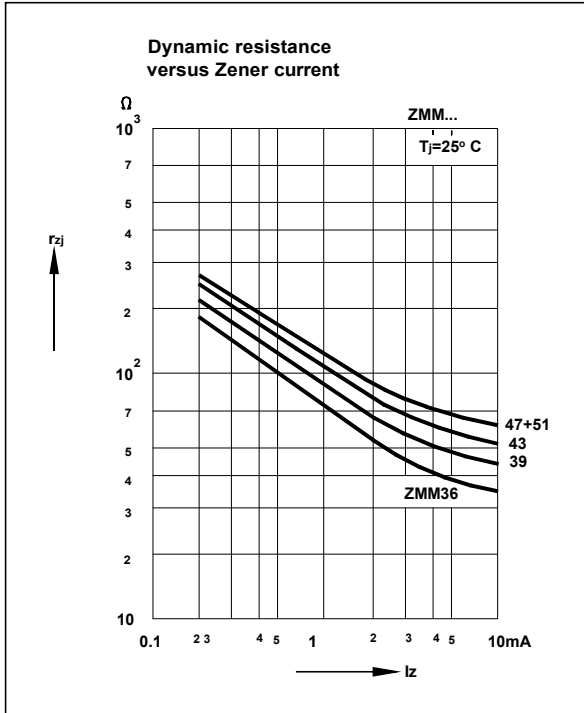
**Forward characteristics**

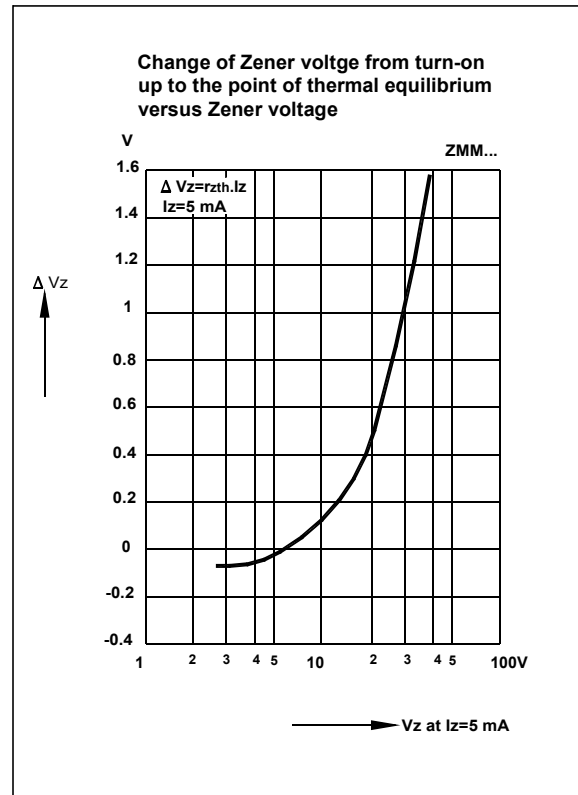
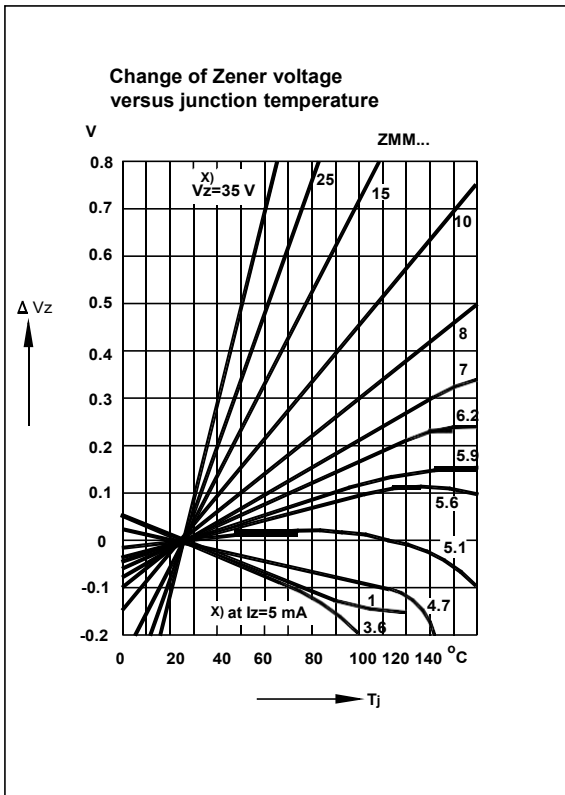
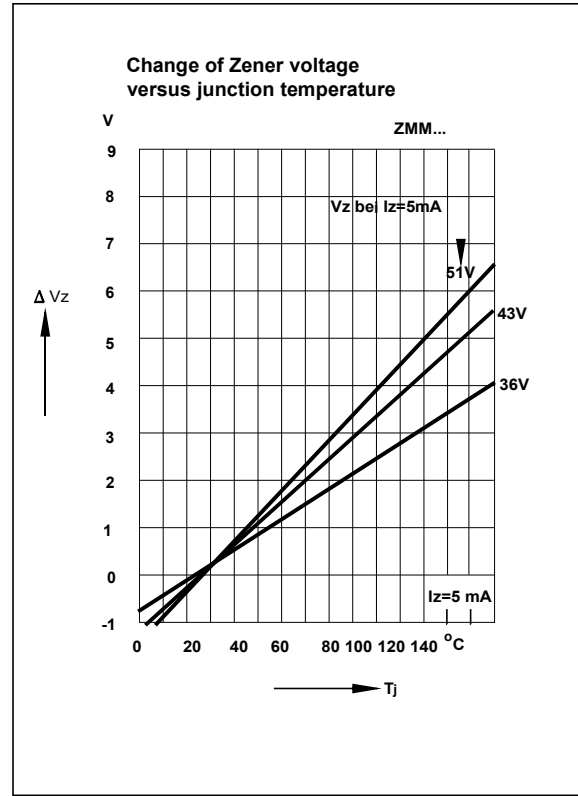
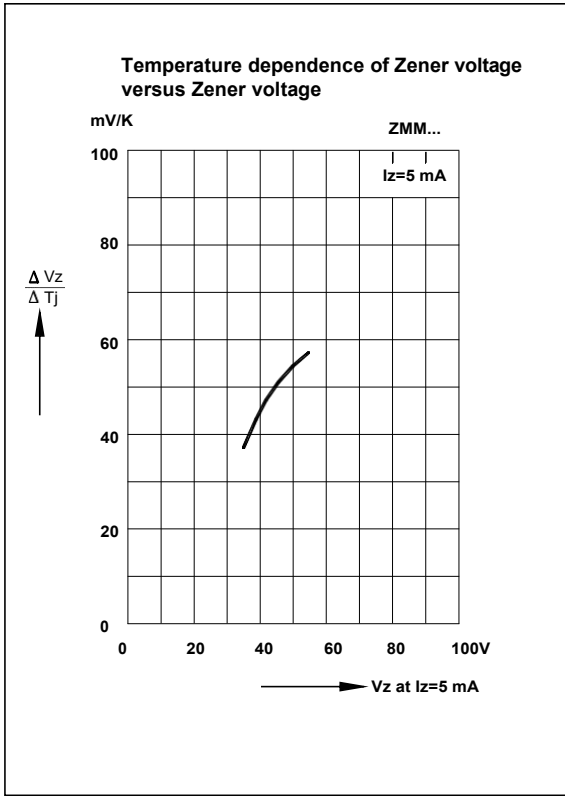


**Admissible power dissipation versus ambient temperature**  
Valid provided that electrodes are kept at ambient temperature.

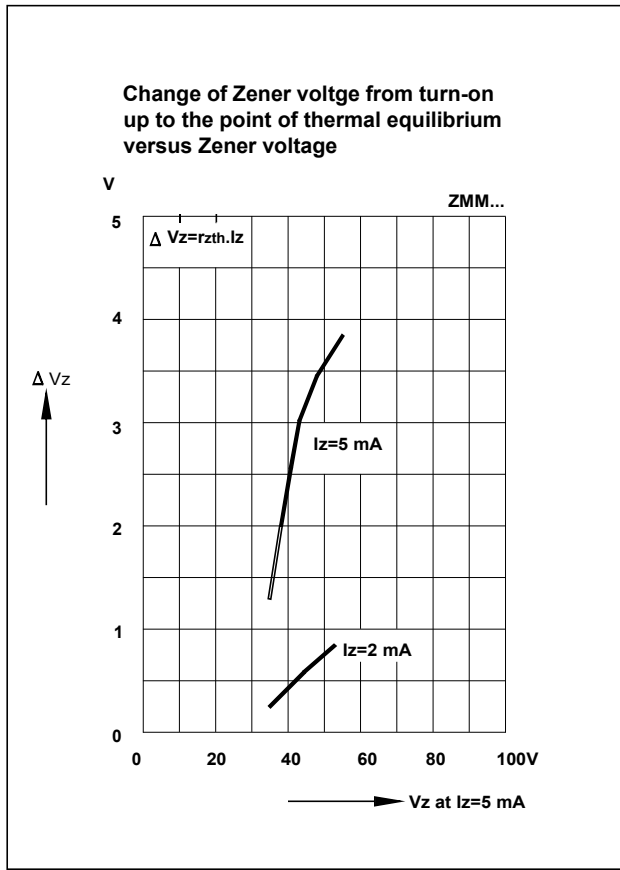












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