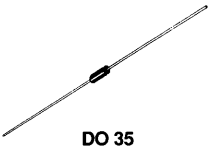
SGS-THOMSON MICROELECTRONICS

T-LVA Series

ZENER DIODES

- A PRONOUNCED LOW CURRENT AVALANCHE CHARACTERISTICS
- A REGULATION FACTOR GUARANTED ACROSS A LARGE CURRENT RANGE (UP TO TWO DECADES OF I_Z)
- SPECIFIED NOISE LEVEL



DO 35
(Glass)

DESCRIPTION

The T-LVA range has been specially developped for the range of Zener voltage between 4.7V to 10V.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P_{tot}	Power Dissipation*	T_{amb} = 25°C	500	mW
T_{stg} T_j	Storage and Junction Temperature Range		– 65 to 200 – 65 to 175	°C
T_L	Maximum Lead Temperature for Soldering during 10s at 4mm from Case		230	°C

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th\ (j\text{-}a)}$	Junction–ambient*	300	°C/W

* On infinite heatsink with 4mm lead length.

ELECTRICAL CHARACTERISTICS

GENERAL PURPOSE

Types	V_{ZT}/I_{ZT} nom (V) (1) (2) (3)	I_{ZT} (mA)	r_{ZT}/I_{ZT} (Ω) (4)	I_R (μA)	V_R (V)	Noise Density @ 250μA max ($\mu V/\sqrt{Hz}$) (5)
T–LVA 47A	4.7	10	15	4.0	2.0	4
T–LVA 51A	5.1	5	15	0.1	2.0	4
T–LVA 56A	5.6	1	40	0.05	3.0	4
T–LVA 62A	6.2	1	50	0.05	4.0	4
T–LVA 68A	6.8	1	50	0.05	5.0	4
T–LVA 75A	7.5	1	100	0.01	6.0	4
T–LVA 82A	8.2	1	100	0.01	6.5	4
T–LVA 91A	9.1	1	100	0.01	8.0	4
T–LVA 100A	10.0	1	100	0.01	9.0	4

Forward voltage drop : $V_F < 1.5V$ (T_{amb} = 25°C, I_F = 200mA)

Notes : 1. For other voltages, consult the manufacturer.
2. Tolerance on nominal V_{ZT} value : + 5%.
3. For other tolerances, consult the manufacturer.
4. Measured @ DC test current with 10% AC superimposed (50Hz).
5. Noise measured at 100Hz with a diode noise analyser "Quan-Tech" Model 327– Bandpass 1000Hz.

ELECTRICAL CHARACTERISTICS (continued)

HIGH PERFORMANCE

Types	V_{ZT}/I_{ZT} (1) (2) (4) nom (V)	I_{ZT} (mA)	r_{ZT}/I_{ZT} (5) (Ω)	I_R / V_R (μA)	(μA) (V)	Noise Density @ 250μA (7) max ($\mu V/\sqrt{Hz}$)	Maximum Regulation $I_{ZT} - I_{ZL}$ ΔV_Z (V)	I_{ZL} (mA)
T-LVA 347A	4.7	10	10	2.0	2.0	1	0.50	1.0
T-LVA 351A	5.1	5	10	2.0	3.0	1	0.30	0.25
T-LVA 356A	5.6	1	40	2.0	4.5	1	0.10	0.05
T-LVA 362A	6.2	1	45	0.5	5.6	1	0.10	0.01
T-LVA 368A	6.8	1	50	0.05	6.2	1	0.10	0.01
T-LVA 375A	7.5	1	50	0.01	6.8	1	0.10	0.01
T-LVA 382A	8.2	1	60	0.01	7.5	1	0.10	0.01
T-LVA 391A	9.1	1	60	0.01	8.2	2	0.10	0.01
T-LVA 3100A	10.0	1	60	0.01	9.1	2	0.10	0.01

Forward voltage drop : $V_F \leq 1.2V$ ($T_{amb} = 25°C$, $I_F = 200mA$).

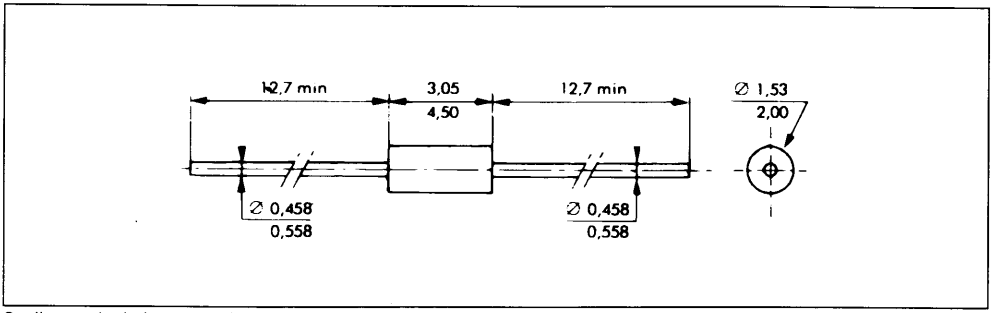
HIGH PERFORMANCE, LOW CURRENT

Types	V_{ZT} @ 250μA (1) (3) (4) nom (V)	r_{ZT} @ 250μA max (Ω)	θV_Z @ 250μA (6) nom (mV/°C)	I_R @ 80%V_Z max (μA)	Maximum Regulation ΔV_Z (V)	I_{LO} (μA)	I_{Hi} (mA)	Noise Density max ($\mu V/\sqrt{Hz}$)	Typical Parameters V_Z @ 10μA (V)	I_R @ 50% V_Z (nA)	I_R @ 90% V_Z (nA)
T-LVA 450A	5.0	700	0.75	10.0	0.40	100	1.0	1	4.15	70	15000
T-LVA 453A	5.3	250	1.33	5.0	0.20	100	1.0	1	4.9	35	7000
T-LVA 456A	5.6	100	1.96	1.0	0.10	50	1.0	1	5.45	15	3000
T-LVA 459A	5.9	100	2.30	0.5	0.10	10	1.0	1	5.85	2.5	1000
T-LVA 462A	6.2	100	2.67	0.1	0.10	10	1.0	1	6.2	0.8	130
T-LVA 465A	6.5	100	3.06	0.05	0.10	10	1.0	1	6.5	0.15	25
T-LVA 468A	6.8	100	3.40	0.01	0.10	10	1.0	1	6.8	< 0.10	9.0
T-LVA 471A	7.1	175	3.76	0.01	0.10	10	1.0	1	7.1	< 0.10	5.5
T-LVA 474A	7.4	175	4.07	0.01	0.10	10	1.0	1	7.4	< 0.10	3.0
T-LVA 477A	7.7	175	4.47	0.01	0.10	10	1.0	1	7.7	< 0.10	2.5
T-LVA 480A	8.0	175	4.80	0.01	0.10	10	1.0	1	8.0	< 0.10	1.8
T-LVA 483A	8.3	175	5.15	0.01	0.10	10	1.0	1	8.3	< 0.10	1.2
T-LVA 486A	8.6	175	5.50	0.01	0.10	10	1.0	1	8.6	< 0.10	0.9
T-LVA 489A	8.9	175	5.87	0.01	0.10	10	1.0	2	8.9	< 0.10	0.6
T-LVA 492A	9.2	175	6.16	0.01	0.10	10	1.0	2	9.2	< 0.10	0.5
T-LVA 495A	9.5	175	6.46	0.01	0.10	10	1.0	2	9.5	< 0.10	0.5
T-LVA 498A	9.8	175	6.86	0.01	0.10	10	1.0	2	9.8	< 0.10	0.4

Notes :
1. For other voltages consult the manufacturer.
2. Tolerance on nominal V_{ZT} : ± 5%.
3. Tolerance on nominal V_{ZT} : ± 0.2V.
4. For other tolerances, consult the manufacturer.
5. Measured @ DC test current with 10% AC superimposed (50Hz).
6. Tolerance : ± 0.5 mV/°C, 0 to 100°C, to V_{ZT} nominal only.
7. Noise measured at 1000Hz with a diode noise analyser "Quan-tech" model 327-Bandpass 1000Hz.

PACKAGE MECHANICAL DATA

DO 35 (Glass)

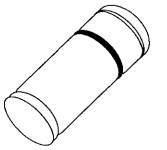


Cooling method : by convectio and conduction
Marking : clear, ring at cathode end.
Weight : 0.15g

TM 4728A → TM 4764A

ZENER DIODES

- VOLTAGE RANGE : 3.3V TO 100V



MELF
(Glass)

DESCRIPTION

1W hermeticallily sealed glass silicon Zener diodes.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P_{tot}	Power Dissipation	T_{lead} = 50°C	1	W
I_{ZM}	Continuous Reverse Current	T_{lead} = 50°C	See page 2	mA
I_{ZSM}	Peak Reverse Current	T_{amb} = 25°C	See page 2	mA
T_{stg} T_j	Storage and Junction Temperature Range		– 65 to 200	°C
T_L	Maximum Temperature for Soldering during 15s		260	°C

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th\ (j-l)}$	Junction–leads	150	°C/W

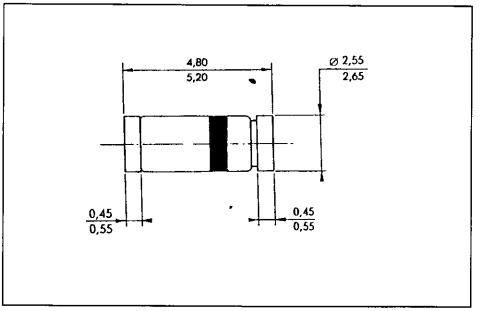
ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise specified)

Types	V_{ZT}/I_{ZT}*	r_{ZT}/I_{ZT}*	I_{ZT}*	r_{ZK}/I_{ZK}		$\propto V_Z$	I_R/V_R	V_R	I_{ZM} T_{amb} 55°C	I_{ZSM}*
	nom	max		max		typ	max			max
	(V)	(Ω)	(mA)	(Ω)	(mA)	(10^{-4}/°C)	(μA)	(V)	(mA)	(mA)
P TM 4728A	3.3	10	76	400	1	− 6	100	1.0	276	2381
TM 4729A	3.6	10	69	400	1	− 6	100	1.0	252	2193
P TM 4730A	3.9	9	64	400	1	− 5	50	1.0	234	2033
TM 4731A	4.3	9	58	400	1	− 3	10	1.0	217	1812
P TM 4732A	4.7	8	53	500	1	− 1	10	1.0	193	1667
P TM 4733A	5.1	7	49	550	1	1	10	1.0	178	1543
P TM 4734A	5.6	5	45	600	1	3	10	2.0	162	1389
P TM 4735A	6.2	2	41	700	1	4	10	3.0	146	1263
P TM 4736A	6.8	3.5	37	700	1	5	10	4.0	133	1167
P TM 4737A	7.5	4	34	700	0.5	5	10	5.0	121	1055
P TM 4738A	8.2	4.5	31	700	0.5	6	10	6.0	110	958
P TM 4739A	9.1	5	28	700	0.5	6	10	7.0	100	868
P TM 4740A	10	7	25	700	0.25	7	10	7.6	91	786
TM 4741A	11	8	23	700	0.25	7	5	8.4	83	718
P TM 4742A	12	9	21	700	0.25	7	5	9.1	76	656
TM 4743A	13	10	19	700	0.25	7	5	9.9	69	591
P TM 4744A	15	14	17	700	0.25	8	5	11.4	61	534
TM 4745A	16	16	15.5	700	0.25	8	5	12.2	57	487
TM 4746A	18	20	14	750	0.25	8	5	13.7	50	436
TM 4747A	20	22	12.5	750	0.25	8	5	15.2	45	393
TM 4748A	22	23	11.5	750	0.25	8	5	16.7	41	358
TM 4749A	24	25	10.5	750	0.25	8	5	18.2	38	326
TM 4750A	27	35	9.5	750	0.25	9	5	20.6	34	288
TM 4751A	30	40	8.5	1000	0.25	9	5	22.8	30	260
TM 4752A	33	45	7.5	1000	0.25	9	5	25.1	27	238
TM 4753A	36	50	7.0	1000	0.25	9	5	27.4	25	219
TM 4754A	39	60	6.5	1000	0.25	9	5	29.7	23	203
TM 4755A	43	70	6.0	1500	0.25	9	5	32.7	22	181
TM 4756A	47	80	5.5	1500	0.25	9	5	35.8	19	167
TM 4757A	51	95	5.0	1500	0.25	9	5	38.8	18	154
TM 4758A	56	110	4.5	2000	0.25	9	5	42.6	16	139
TM 4759A	62	125	4.0	2000	0.25	9	5	47.1	14	126
TM 4760A	68	150	3.7	2000	0.25	9	5	51.7	13	116
TM 4761A	75	175	3.3	2000	0.25	9	5	56	12	104
TM 4762A	82	200	3.0	3000	0.25	9	5	62.2	11	96
TM 4763A	91	250	2.8	3000	0.25	9	5	69.2	10	87
TM 4764A	100	350	2.5	3000	0.25	9	5	76	9	79

* Measure under thermal equilibrium and DC test conditions (T_{amb}= 25°C).
* * Rectangular wave form (t_p = 10ms).
Tolerance on nominal V_{ZT} value : ± 5%.
Voltage > 100V on request.
P : Preferred voltages.
Tight tolerances on preferred voltages : ± 3% − ± 2%.
Forward voltage drop : $V_F \leq 1.2V$ (T_{amb} = 25°C, I_F = 200mA).

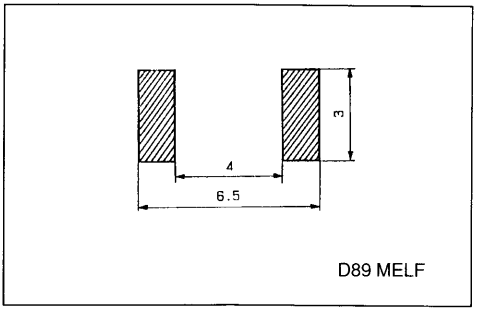
PACKAGE MECHANICAL DATA

MELF Glass



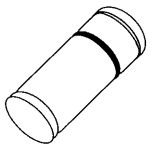
Marking : ring at cathode end.
Weight : 0.15g

FOOT PRINT DIMENSIONS (millimeters)



TEMPERATURE COMPENSATED ZENER DIODES

NEW SERIE



MINIMELF
(Glass)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P_{tot}	Power Dissipation	T_{leads} = 50°C	0.4	W
T_{stg} T_j	Storage and Junction Temperature Range		– 65 to 175 – 55 to 175	°C °C
T_L	Maximum Temperature for Soldering during 15s		260	°C

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction-leads	300	°C/W

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise specified)

Types	V_{ZT} typ. (V)	R_{ZT} @ I_{ZT} max. (Ω)	(mA)	Test Temperatures (°C)					ΔV_Z* max. (mV)	αV_Z (10^{-6}/°C)
TMM821	6.2	15	7.5	– 55	0	+ 25	+ 75	+ 100	96	100
TMM823	6.2	15	7.5	– 55	0	+ 25	+ 75	+ 100	48	50
TMM825	6.2	15	7.5	– 55	0	+ 25	+ 75	+ 100	19	20
TMM827	6.2	15	7.5	– 55	0	+ 25	+ 75	+ 100	9	10
TMM829	6.2	15	7.5	– 55	0	+ 25	+ 75	+ 100	5	5
TMM821A	6.2	10	7.5	– 55	0	+ 25	+ 75	+ 100	96	100
TMM823A	6.2	10	7.5	– 55	0	+ 25	+ 75	+ 100	48	50
TMM825A	6.2	10	7.5	– 55	0	+ 25	+ 75	+ 100	19	20
TMM827A	6.2	10	7.5	– 55	0	+ 25	+ 75	+ 100	9	10
TMM829A	6.2	10	7.5	– 55	0	+ 25	+ 75	+ 100	5	5

* The voltage reference diodes are characterized by the box methode.The maximum allowable voltage change ΔV_Z is guaranteed any two temperature within the range. Tests are performed at the indicated temperatures and the specified current.

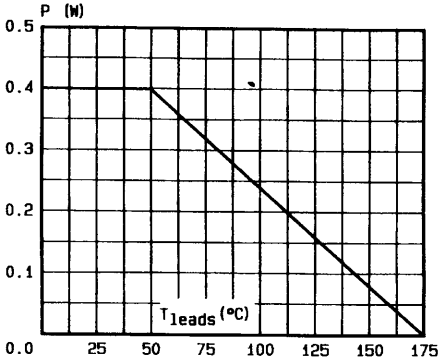


Fig.1 - Power dissipation versus leads temperature.

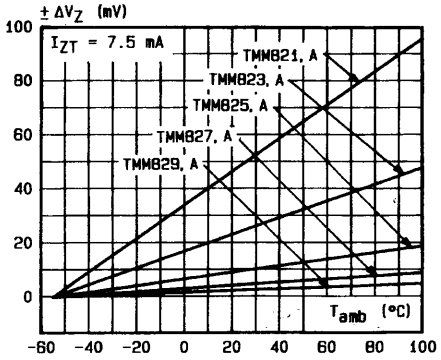
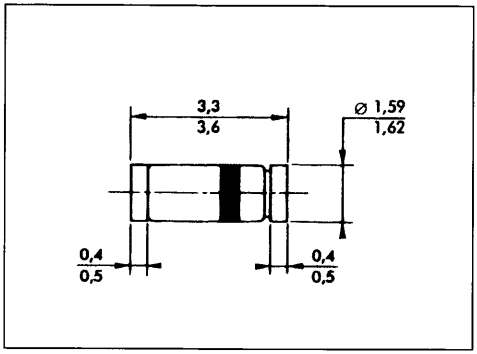


Fig.2 - Regulation voltage variation versus ambient temperature.

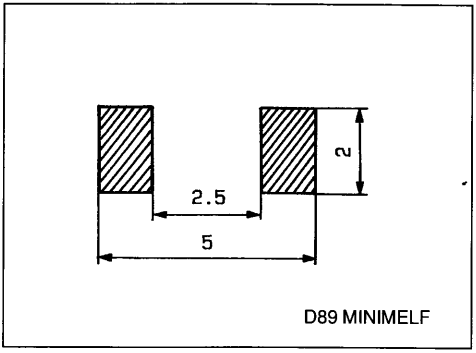
PACKAGE MECHANICAL DATA

MINIMELF Glass



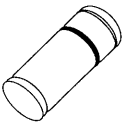
Marking : clear, ring at cathode end.
Weight : 0.05g

FOOT PRINT DIMENSIONS (Millimeter)



TEMPERATURE COMPENSATED ZENER DIODES

NEW SERIE



MINIMELF
(Glass)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
P_{tot}	Power Dissipation	T_{leads} = 50°C	0.4	W
T_{stg} T_j	Storage and Junction Temperature Range		– 65 to 175 – 65 to 175	°C °C
T_L	Maximum Temperature for Soldering during 15s		260	°C

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction-leads	300	°C/W

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise specified)

Types	V_{ZT} typ. (V)	R_{ZT} @ I_{ZT} max. (Ω)	(I_{ZT} mA)	Test Temperatures (°C)					ΔV_Z** max. (mV)	αV_Z (10^{-6}/°C)
TMM4565	6.4	200	0.5		0	+ 25	+ 75		48	100
TMM4566	6.4	200	0.5		0	+ 25	+ 75		24	50
TMM4567	6.4	200	0.5		0	+ 25	+ 75		10	20
TMM4568	6.4	200	0.5		0	+ 25	+ 75		5	10
TMM4569	6.4	200	0.5		0	+ 25	+ 75		2	5
TMM4565A	6.4	200	0.5	– 55	0	+ 25	+ 75	+ 100	99	100
TMM4566A	6.4	200	0.5	– 55	0	+ 25	+ 75	+ 100	50	50
TMM4567A	6.4	200	0.5	– 55	0	+ 25	+ 75	+ 100	20	20
TMM4568A	6.4	200	0.5	– 55	0	+ 25	+ 75	+ 100	10	10
TMM4569A	6.4	200	0.5	– 55	0	+ 25	+ 75	+ 100	5	5

* The voltage reference diodes are characterized by the box methode. The maximum allo wable voltage change ΔV_Z is guaranteed any two temperature within the range. Tests are performed at the indicated temperatures and the specified current.

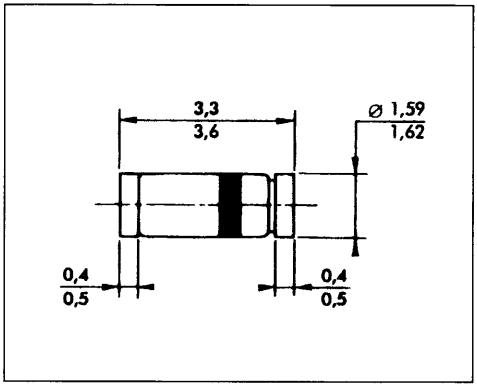
ELECTRICAL CHARACTERISTICS (continued)

Types	V_{ZT} typ. (V)	R_{ZT} @ I_{ZT} max. (Ω) (mA)	Test Temperatures (°C)					ΔV_Z** max. (mV)	αV_Z (10^{-6}/°C)
TMM4575	8.5	100 1		0	+ 25	+ 75		64	100
TMM4576	8.5	100 1		0	+ 25	+ 75		32	50
TMM4577	8.5	100 1		0	+ 25	+ 75		13	20
TMM4578	8.5	100 1		0	+ 25	+ 75		6	10
TMM4579	8.5	100 1		0	+ 25	+ 75		3	5
TMM4575A	8.5	100 1	− 55	0	+ 25	+ 75	+ 100	132	100
TMM4576A	8.5	100 1	− 55	0	+ 25	+ 75	+ 100	66	50
TMM4577A	8.5	100 1	− 55	0	+ 25	+ 75	+ 100	26	20
TMM4578A	8.5	100 1	− 55	0	+ 25	+ 75	+ 100	13	10
TMM4579A	8.5	100 1	− 55	0	+ 25	+ 75	+ 100	7	5

* The voltage reference diodes are characterized by the box methode. The maximum allo wable voltage change ΔV_Z is guaranteed any two temperature within the range. Tests are performed at the indicated temperatures and the specified current.

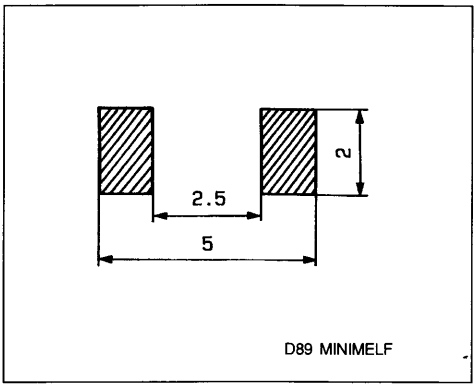
PACKAGE MECHANICAL DATA

MINIMELF Glass



Marking : ring at cathode end
Weight : 0.05g

FOOT PRINT DIMENSIONS (Millimeter)



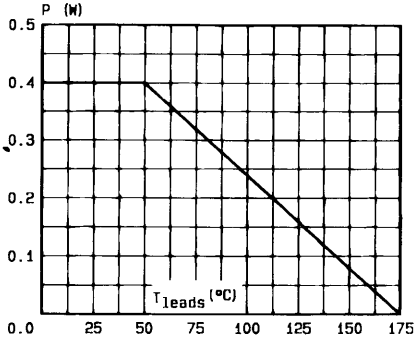


Fig.1 - Power dissipation versus leads temperature.

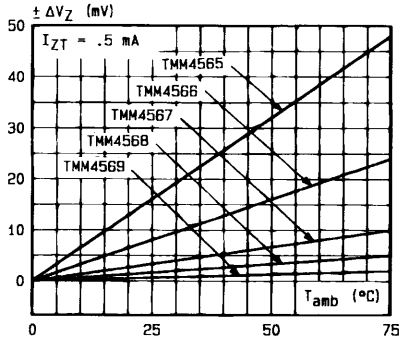


Fig.2a - Regulation voltage variation versus ambient temperature.

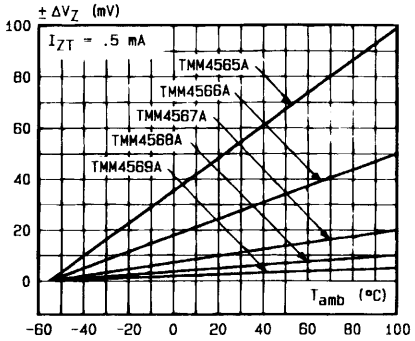


Fig.2b - Regulation voltage variation versus ambient temperature.

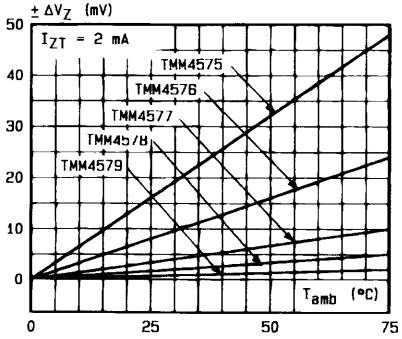


Fig.2c - Regulation voltage variation versus ambient temperature.

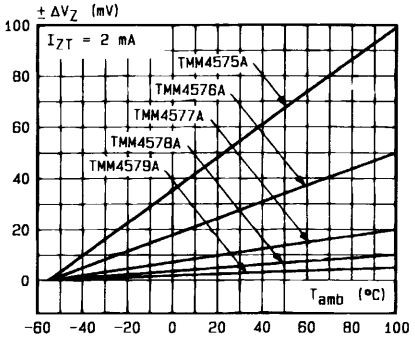


Fig.2d - Regulation voltage variation versus ambient temperature.