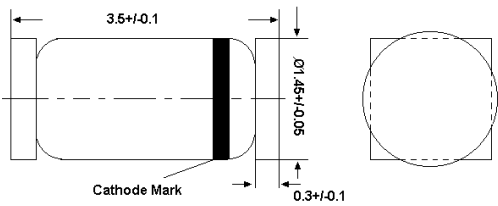


SILICON EPITAXIAL PLANAR ZENER DIODES
Voltage Stabilization Applications

LS-34

Features

- Zener voltage specified at 50 μ A.
- Maximum delta V_Z given from 10 μ A to 100 μ A
- Very high stability
- Low noise



Glass case MiniMELF

Dimensions in mm

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

	Symbol	Value	Unit
Power Dissipation at $R_{thJA} \leq 300\text{K/W}$	P_{tot}	500	mW
Z-current	I_Z	P_{tot} / V_Z	mA
Junction Temperature	T_j	175	$^{\circ}\text{C}$
Storage Temperature Range	T_s	-65 to +175	$^{\circ}\text{C}$

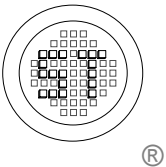
Thermal Characteristics ($T_a = 25^{\circ}\text{C}$)

	Symbol	Value	Unit
Junction Ambient (Note 1)	R_{thJA}	500	K/W

Note 1: On PC board 50mm x 50mm x 1.6mm

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

	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage at $I_F = 100\text{mA}$	V_F	-	-	1.5	V



SEMTECH ELECTRONICS LTD.
(Subsidiary of Semtech International Holdings Limited, a company
listed on the Hong Kong Stock Exchange, Stock Code: 724)



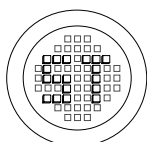
Dated : 11/04/2005

BTZS4678...BTZS4717

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

TYPE	Zener Voltage			Zener Current	Voltage Change	Reverse Current	Test Voltage
	V_Z (V) @ $I_Z=50\mu\text{A}$			$I_{ZM}^{(2)}$ (mA)	$\Delta V_Z^{(4)}$ (V)	$I_R^{(3)}$ (μA)	$V_R^{(3)}$ (V)
	Typ. ¹⁾	Min.	Max.	Max.	Max.	Max.	
BTZS4678	1.8	1.71	1.89	120	0.7	7.5	1
BTZS4679	2	1.9	2.1	110	0.7	5	1
BTZS4680	2.2	2.09	2.31	100	0.75	4	1
BTZS4681	2.4	2.28	2.52	95	0.80	2	1
BTZS4682	2.7	2.565	2.835	90	0.85	1	1
BTZS4683	3	2.85	3.15	85	0.90	0.80	1
BTZS4684	3.3	3.135	3.465	80	0.95	7.5	1.5
BTZS4685	3.6	3.42	3.78	75	0.95	7.5	2
BTZS4686	3.9	3.705	4.095	70	0.97	5	2
BTZS4687	4.3	4.085	4.515	65	0.99	4	2
BTZS4688	4.7	4.465	4.935	60	0.99	10	3
BTZS4689	5.1	4.845	5.355	55	0.97	10	3
BTZS4690	5.6	5.32	5.88	50	0.96	10	4
BTZS4691	6.2	5.89	6.51	45	0.95	10	5
BTZS4692	6.8	6.46	7.14	35	0.90	10	5.1
BTZS4693	7.5	7.125	7.875	31.8	0.75	10	5.7
BTZS4694	8.2	7.79	8.61	29	0.5	1	6.2
BTZS4695	8.7	8.265	9.135	27.4	0.1	1	6.6
BTZS4696	9.1	8.645	9.555	26.2	0.08	1	6.9
BTZS4697	10	9.5	10.5	24.8	0.1	1	7.6
BTZS4698	11	10.45	11.55	21.6	0.11	0.05	8.4
BTZS4699	12	11.4	12.6	20.4	0.12	0.05	9.1
BTZS4700	13	12.35	13.65	19	0.13	0.05	9.8
BTZS4701	14	13.3	14.7	17.5	0.14	0.05	10.6
BTZS4702	15	14.25	15.75	16.3	0.15	0.05	11.4
BTZS4703	16	15.2	16.8	15.4	0.16	0.05	12.1
BTZS4704	17	16.15	17.85	14.5	0.17	0.05	12.9
BTZS4705	18	17.1	18.9	13.2	0.18	0.05	13.6
BTZS4706	19	18.05	19.95	12.5	0.19	0.05	14.4
BTZS4707	20	19	21	11.9	0.2	0.01	15.2
BTZS4708	22	20.9	23.1	10.8	0.22	0.01	16.7
BTZS4709	24	22.8	25.2	9.9	0.24	0.01	18.2
BTZS4710	25	23.75	26.25	9.5	0.25	0.01	19
BTZS4711	27	25.65	28.35	8.8	0.27	0.01	20.4
BTZS4712	28	26.6	29.4	8.5	0.28	0.01	21.2
BTZS4713	30	28.5	31.5	7.9	0.3	0.01	22.8
BTZS4714	33	31.35	34.65	7.2	0.33	0.01	25
BTZS4715	36	34.2	37.8	6.6	0.36	0.01	27.3
BTZS4716	39	37.05	40.95	6.1	0.39	0.01	29.6
BTZS4717	43	40.85	45.15	5.5	0.43	0.01	32.6

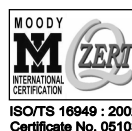
- 1). Toleranzing and voltage designation (V_Z). The type numbers shown have a standard tolerance of $\pm 5\%$ on the nominal zener voltage.
- 2). Maximum zener current ratings (I_{ZM}). Maximum zener current ratings are based on maximum zener voltage of the individual units.
- 3). Reverse leakage current (I_R). Reverse leakage currents are guaranteed and measured at V_R as shown on the table.
- 4). Maximum voltage change (ΔV_Z). Voltage change is equal to the difference between V_Z at 100 μA and V_Z at 10 μA .



®

SEMTECH ELECTRONICS LTD.

(Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



Dated : 11/04/2005

Typical Characteristics ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

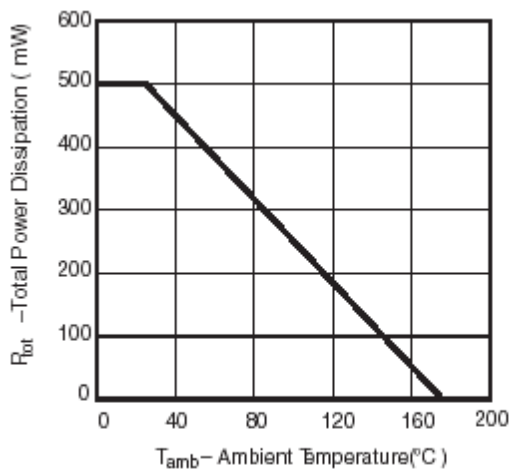


Figure 1. Total Power Dissipation vs. Ambient Temperature

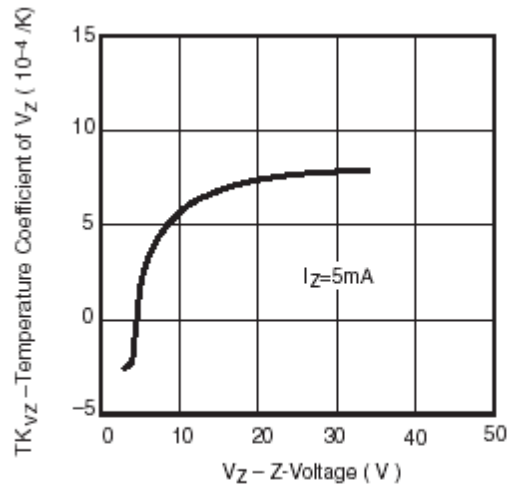


Figure 4. Temperature Coefficient of V_Z vs. Z-Voltage

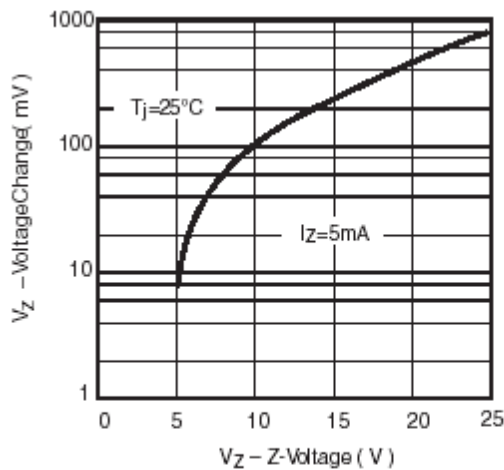


Figure 2. Typical Change of Working Voltage under Operating Conditions at $T_{amb} = 25^{\circ}\text{C}$

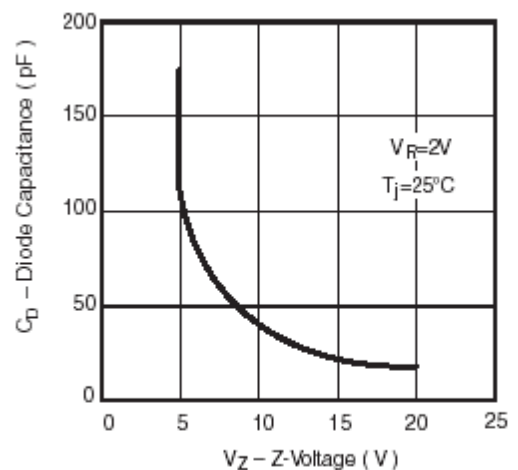


Figure 5. Diode Capacitance vs. Z-Voltage

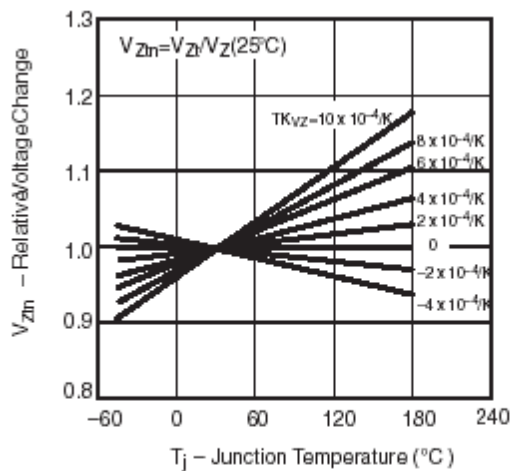


Figure 3. Typical Change of Working Voltage vs. Junction Temperature

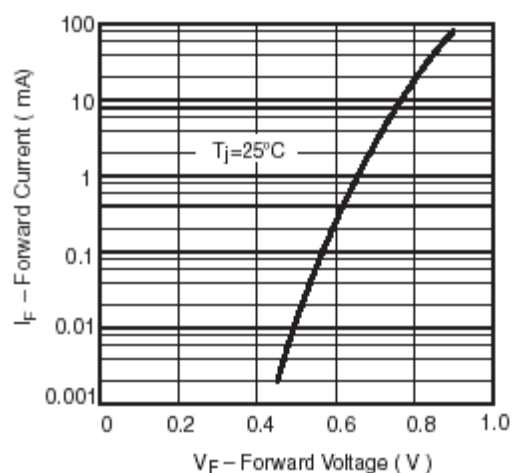
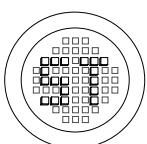


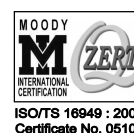
Figure 6. Forward Current vs. Forward Voltage



SEMTECH ELECTRONICS LTD.

(Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)

®



Dated : 11/04/2005

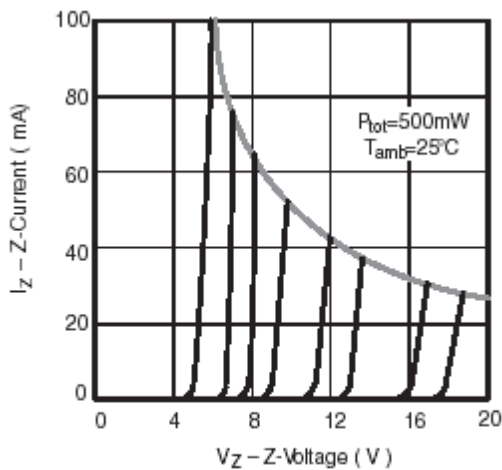


Figure 7. Z-Current vs. Z-Voltage

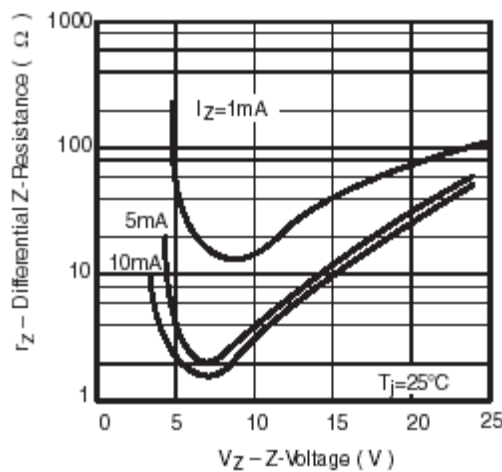


Figure 9. Differential Z-Resistance vs. Z-Voltage

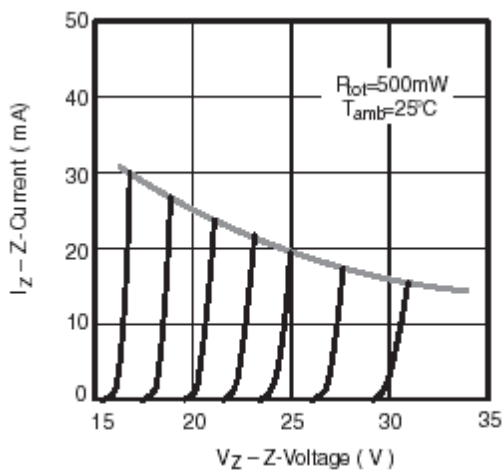


Figure 8. Z-Current vs. Z-Voltage

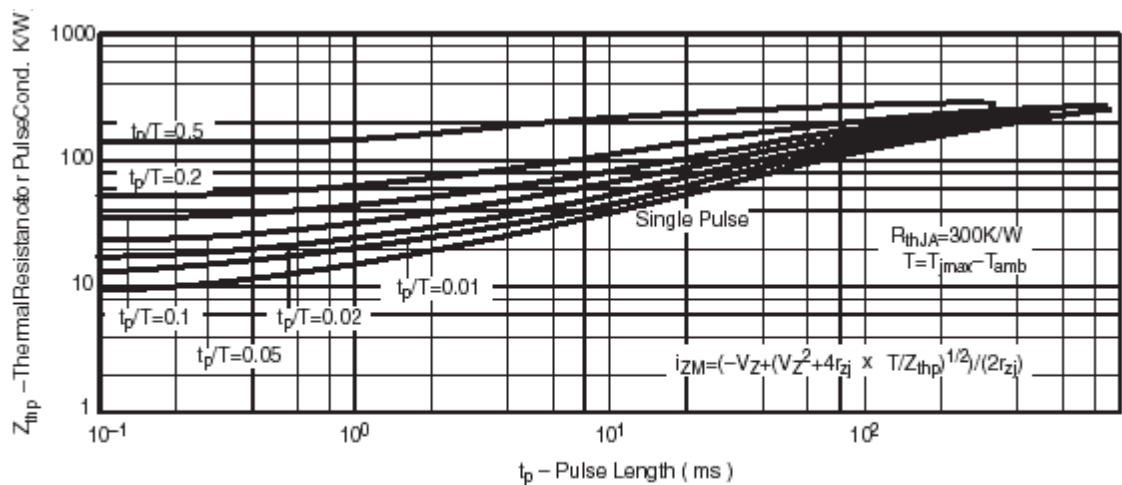
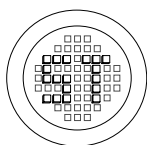


Figure 10. Thermal Response



SEMTECH ELECTRONICS LTD.
(Subsidiary of Semtech International Holdings Limited, a company
listed on the Hong Kong Stock Exchange, Stock Code: 724)



Dated : 11/04/2005