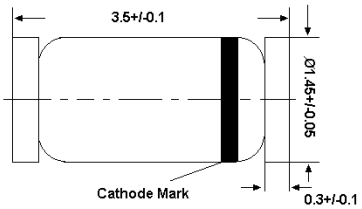
Silicon Epitaxial Planar Zener Diodes

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.

LL34



Glass case MiniMELF
Dimensions in mm

Absolute Maximum Ratings (T_a = 25 °C)

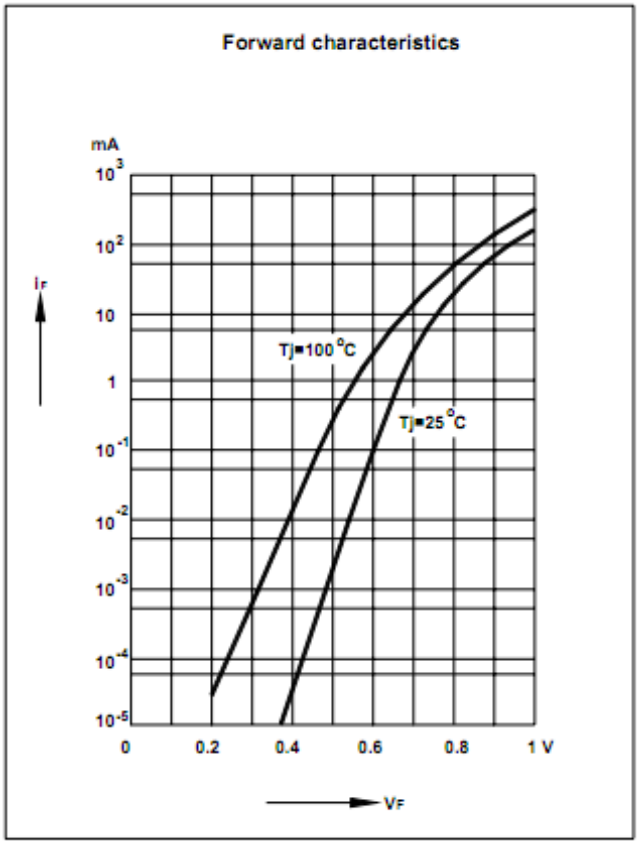
Parameter	Symbol	Value	Unit
Power Dissipation	P_{tot}	500 [1]	mW
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_{stg}	- 55 to + 175	°C
[1] Valid provided that electrodes are kept at ambient temperature			

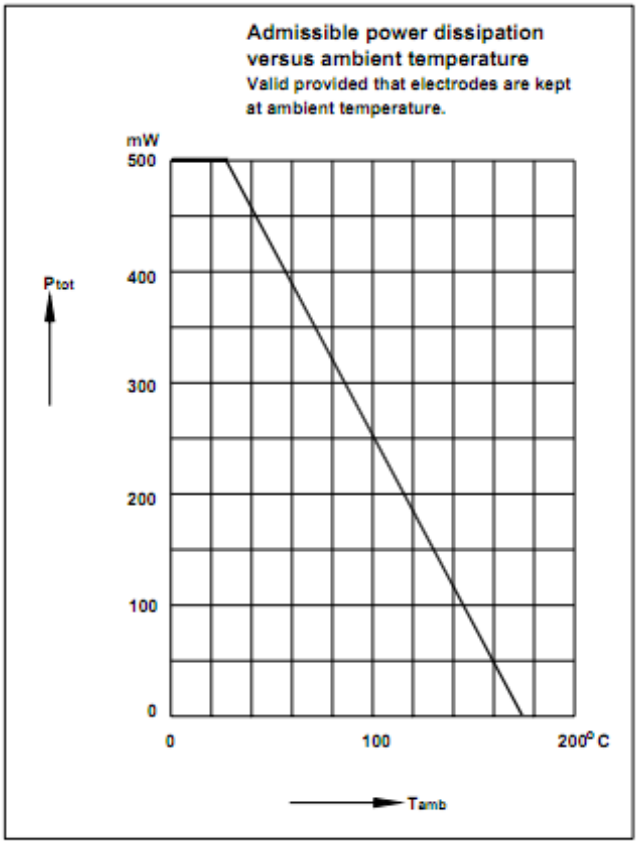
Characteristics at T_a = 25 °C

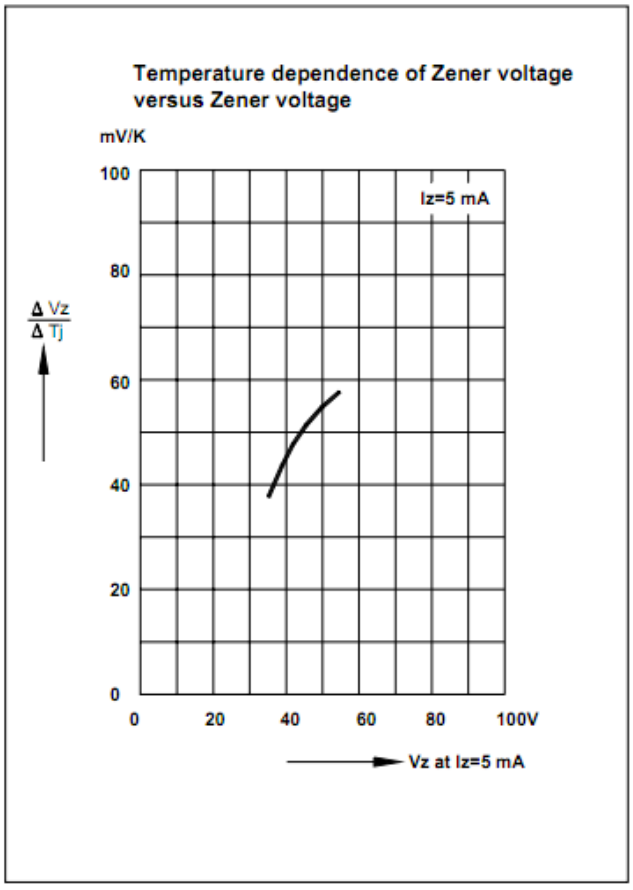
Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient Air	R_{thA}	0.3 [1]	K/mW
Forward Voltage at I_F = 100 mA	V_F	1	V
Reverse Leakage Current	I_R	0.2	µA
[1] Valid provided that electrodes are kept at ambient temperature			

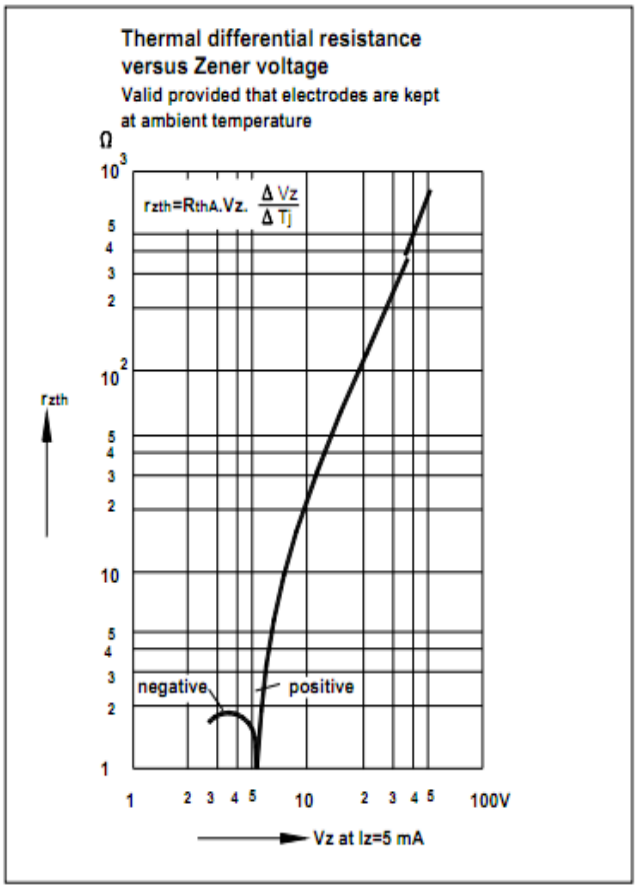
Characteristics at T_a = 25 °C

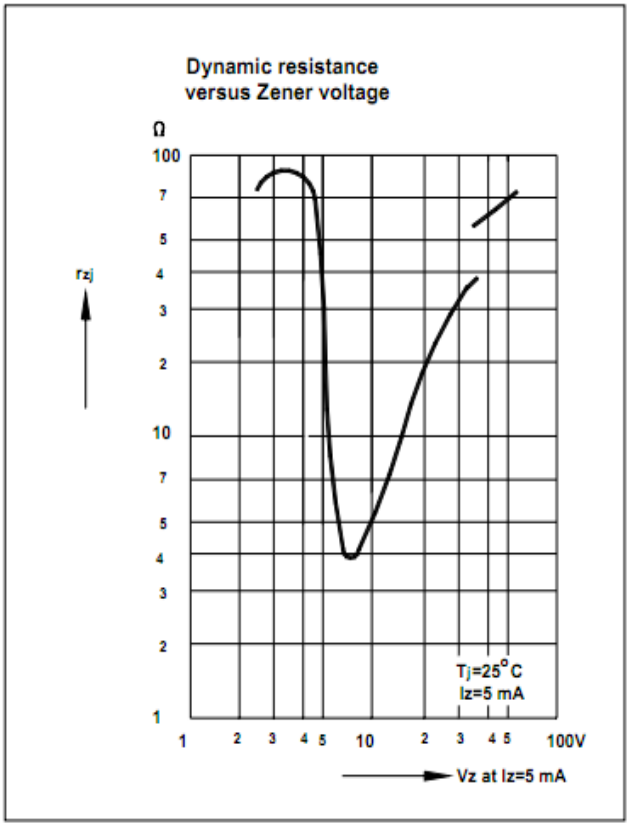
Type	Zener Voltage Range [1]			Dynamic Resistance			Reverse Leakage Current			Temp. Coefficient of Zener Voltage
	V_{Znom}	V_{ZT}	at I_{ZT}	Z_{ZT}	Z_{ZK}	at I_{ZK}	T_a = 25 °C	T_a = 125 °C	at V_R	
	(V)	(V)	(mA)	Max. (Ω)	Max. (Ω)	(mA)	Max. (µA)	Max. (µA)	(V)	TKvz (%/K)
ZMM5B1	5.1	5 … 5.2	5	35	550	1	0.1	2	1	-0.02...+0.02

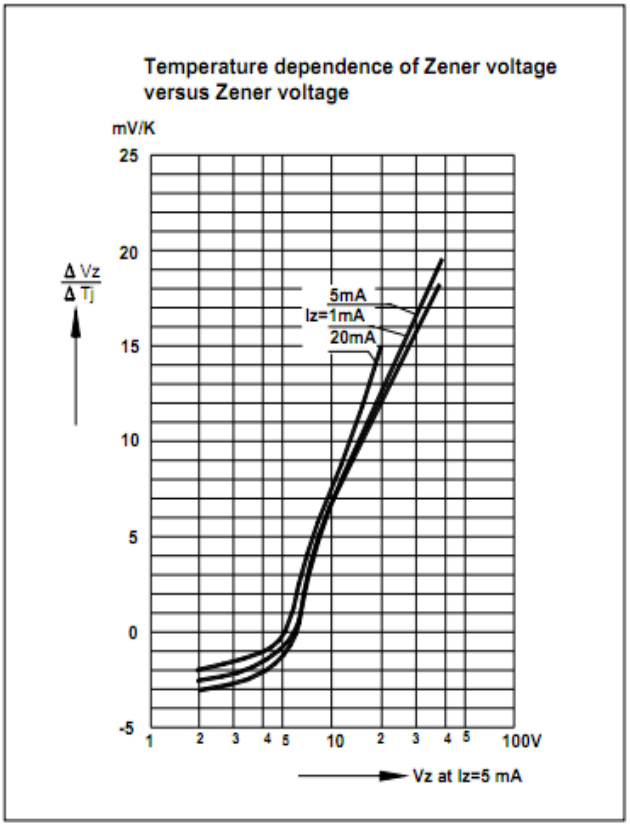

Forward characteristics
mA
10^3
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
I_F
Tj=100 °C
Tj=25 °C
0
0.2
0.4
0.6
0.8
1 V
V_F

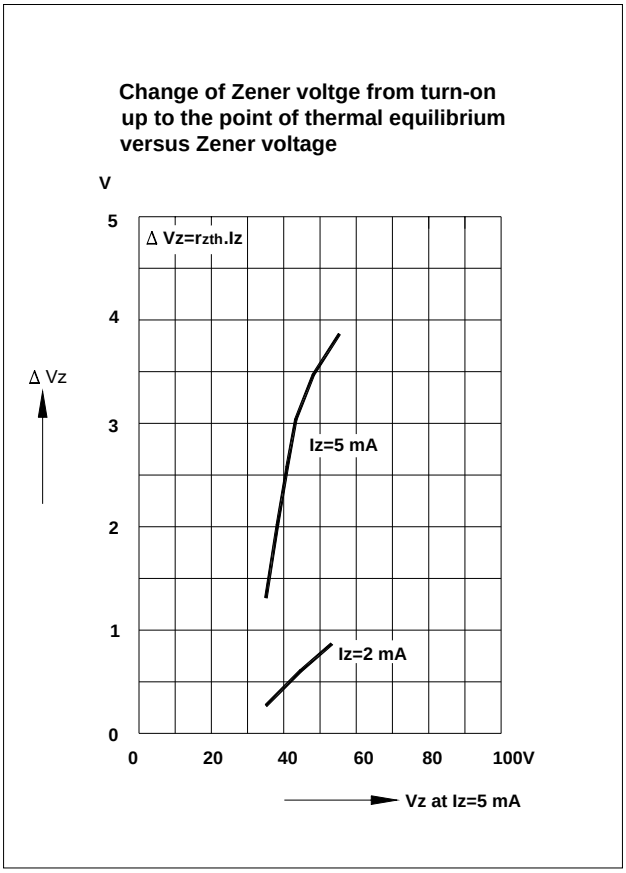

Admissible power dissipation
versus ambient temperature
Valid provided that electrodes are kept
at ambient temperature.
mW
500
400
300
200
100
0
P_{tot}
0
100
200° C
T_{amb}

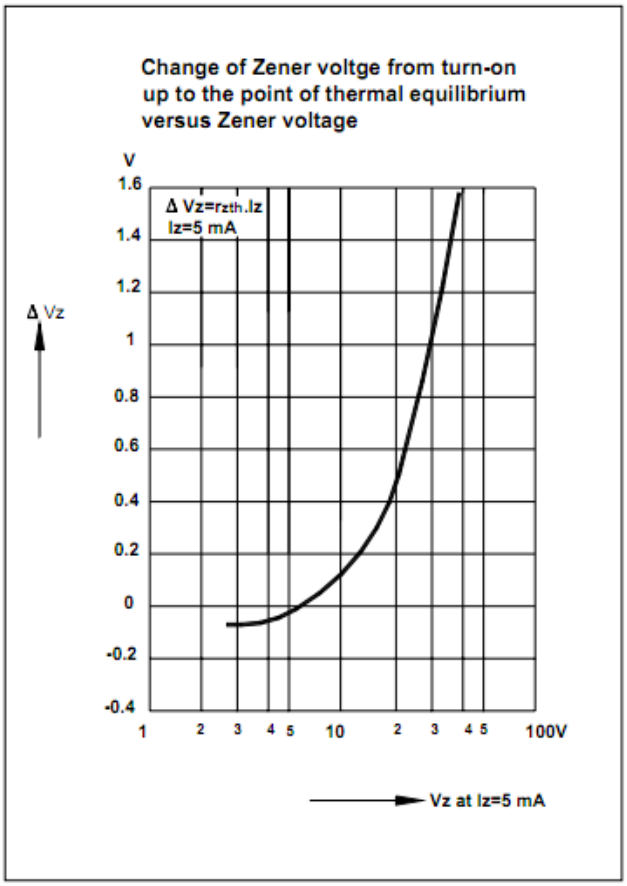

Temperature dependence of Zener voltage
versus Zener voltage
mV/K
100
80
60
40
20
0
Iz=5 mA
$\frac{\Delta Vz}{\Delta Tj}$
0
20
40
60
80
100V
Vz at Iz=5 mA


Thermal differential resistance
versus Zener voltage
Valid provided that electrodes are kept
at ambient temperature
Ω
10^3
10^2
10
1
r_{zth}
$r_{zth}=R_{thA}.Vz.\frac{\Delta Vz}{\Delta Tj}$
negative
positive
1
2 3 4 5
10
2 3 4 5
100V
Vz at Iz=5 mA


Dynamic resistance
versus Zener voltage
Ω
rzj
100
7
5
4
3
2
10
7
5
4
3
2
1
Tj=25°C
Iz=5 mA
1
2
3
4
5
10
2
3
4
5
100V
Vz at Iz=5 mA


Temperature dependence of Zener voltage
versus Zener voltage
mV/K
Δ Vz
Δ Tj
25
20
15
10
5
0
-5
5mA
Iz=1mA
20mA
1
2
3
4
5
10
2
3
4
5
100V
Vz at Iz=5 mA


Change of Zener voltge from turn-on
up to the point of thermal equilibrium
versus Zener voltage
V
Δ Vz
5
4
3
2
1
0
Δ Vz=rzth.Iz
Iz=5 mA
Iz=2 mA
0
20
40
60
80
100V
Vz at Iz=5 mA


Change of Zener voltge from turn-on
up to the point of thermal equilibrium
versus Zener voltage
V
Δ Vz
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
Δ Vz=rzth.Iz
Iz=5 mA
1
2
3
4
5
10
2
3
4
5
100V
Vz at Iz=5 mA