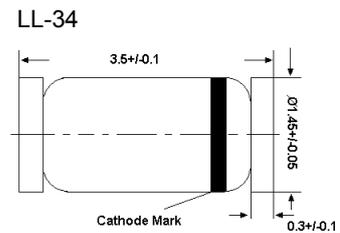


# ZMM...HS Series

## Silicon Epitaxial Planar Zener Diodes



Glass case MiniMELF  
Dimensions in mm

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

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

<sup>1)</sup> Valid provided that electrodes are kept at ambient temperature

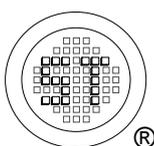
### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient Air	$R_{\text{thA}}$	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 $T_a = 25\text{ }^\circ\text{C}$

Type	Zener Voltage <sup>1)</sup>		Dynamic Resistance		Reverse Leakage Current	
	$V_Z$		$Z_{ZT}$	at $I_{ZT}$	$I_R$	at $V_R$
	Min. (V)	Max. (V)	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	(V)
ZMM2V0HS	1.88	2.2	100	5	120	0.5
ZMM2V0HSA	1.88	2.1	100	5	120	0.5
ZMM2V0HSB	2.02	2.2	100	5	120	0.5
ZMM2V2HS	2.12	2.41	100	5	120	0.7
ZMM2V2HSA	2.12	2.3	100	5	120	0.7
ZMM2V2HSB	2.22	2.41	100	5	120	0.7
ZMM2V4HS	2.33	2.63	100	5	120	1
ZMM2V4HSA	2.33	2.52	100	5	120	1
ZMM2V4HSB	2.43	2.63	100	5	120	1
ZMM2V7HS	2.54	2.91	110	5	100	1
ZMM2V7HSA	2.54	2.75	110	5	100	1
ZMM2V7HSB	2.69	2.91	110	5	100	1
ZMM3V0HS	2.85	3.22	120	5	50	1
ZMM3V0HSA	2.85	3.07	120	5	50	1
ZMM3V0HSB	3.01	3.22	120	5	50	1



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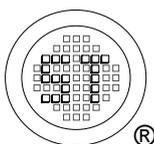


Dated : 18/07/2009

# ZMM...HS Series

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

Type	Zener Voltage <sup>1)</sup>			Dynamic Resistance		Reverse Leakage Current	
	$V_Z$		at $I_{ZT}$	$Z_{ZT}$	at $I_{ZT}$	$I_R$	at $V_R$
	Min. (V)	Max. (V)	(mA)	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	(V)
ZMM3V3HS	3.16	3.53	5	120	5	20	1
ZMM3V3HSA	3.16	3.38	5	120	5	20	1
ZMM3V3HSB	3.32	3.53	5	120	5	20	1
ZMM3V6HS	3.47	3.83	5	120	5	10	1
ZMM3V6HSA	3.47	3.68	5	120	5	10	1
ZMM3V6HSB	3.62	3.83	5	120	5	10	1
ZMM3V9HS	3.77	4.14	5	120	5	5	1
ZMM3V9HSA	3.77	3.98	5	120	5	5	1
ZMM3V9HSB	3.92	4.14	5	120	5	5	1
ZMM4V3HS	4.05	4.53	5	120	5	5	1
ZMM4V3HSA	4.05	4.26	5	120	5	5	1
ZMM4V3HSB	4.2	4.4	5	120	5	5	1
ZMM4V3HSC	4.34	4.53	5	120	5	5	1
ZMM4V7HS	4.47	4.91	5	100	5	5	1
ZMM4V7HSA	4.47	4.65	5	100	5	5	1
ZMM4V7HSB	4.59	4.77	5	100	5	5	1
ZMM4V7HSC	4.71	4.91	5	100	5	5	1
ZMM5V1HS	4.85	5.35	5	70	5	5	1.5
ZMM5V1HSA	4.85	5.03	5	70	5	5	1.5
ZMM5V1HSB	4.97	5.18	5	70	5	5	1.5
ZMM5V1HSC	5.12	5.35	5	70	5	5	1.5
ZMM5V6HS	5.29	5.88	5	40	5	5	2.5
ZMM5V6HSA	5.29	5.52	5	40	5	5	2.5
ZMM5V6HSB	5.46	5.7	5	40	5	5	2.5
ZMM5V6HSC	5.64	5.88	5	40	5	5	2.5
ZMM6V2HS	5.81	6.4	5	30	5	5	3
ZMM6V2HSA	5.81	6.06	5	30	5	5	3
ZMM6V2HSB	5.99	6.24	5	30	5	5	3
ZMM6V2HSC	6.16	6.4	5	30	5	5	3
ZMM6V8HS	6.32	6.97	5	25	5	2	3.5
ZMM6V8HSA	6.32	6.59	5	25	5	2	3.5
ZMM6V8HSB	6.52	6.79	5	25	5	2	3.5
ZMM6V8HSC	6.7	6.97	5	25	5	2	3.5
ZMM7V5HS	6.88	7.64	5	25	5	0.5	4
ZMM7V5HSA	6.88	7.19	5	25	5	0.5	4
ZMM7V5HSB	7.11	7.41	5	25	5	0.5	4
ZMM7V5HSC	7.33	7.64	5	25	5	0.5	4
ZMM8V2HS	7.56	8.41	5	20	5	0.5	5
ZMM8V2HSA	7.56	7.9	5	20	5	0.5	5
ZMM8V2HSB	7.82	8.15	5	20	5	0.5	5
ZMM8V2HSC	8.07	8.41	5	20	5	0.5	5
ZMM9V1HS	8.33	9.29	5	20	5	0.5	6
ZMM9V1HSA	8.33	8.7	5	20	5	0.5	6
ZMM9V1HSB	8.61	8.99	5	20	5	0.5	6
ZMM9V1HSC	8.89	9.29	5	20	5	0.5	6



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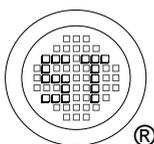


Dated : 18/07/2009

# ZMM...HS Series

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

Type	Zener Voltage <sup>1)</sup>			Dynamic Resistance		Reverse Leakage Current	
	$V_Z$		at $I_{ZT}$	$Z_{ZT}$	at $I_{ZT}$	$I_R$	at $V_R$
	Min. (V)	Max. (V)	(mA)	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	(V)
ZMM10HS	9.19	10.3	5	20	5	0.2	7
ZMM10HSA	9.19	9.59	5	20	5	0.2	7
ZMM10HSB	9.48	9.9	5	20	5	0.2	7
ZMM10HSC	9.82	10.3	5	20	5	0.2	7
ZMM11HS	10.18	11.26	5	20	5	0.2	8
ZMM11HSA	10.18	10.63	5	20	5	0.2	8
ZMM11HSB	10.5	10.95	5	20	5	0.2	8
ZMM11HSC	10.82	11.26	5	20	5	0.2	8
ZMM12HS	11.13	12.3	5	25	5	0.2	9
ZMM12HSA	11.13	11.63	5	25	5	0.2	9
ZMM12HSB	11.5	11.92	5	25	5	0.2	9
ZMM12HSC	11.8	12.3	5	25	5	0.2	9
ZMM13HS	12.18	13.62	5	25	5	0.2	10
ZMM13HSA	12.18	12.71	5	25	5	0.2	10
ZMM13HSB	12.59	13.16	5	25	5	0.2	10
ZMM13HSC	13.03	13.62	5	25	5	0.2	10
ZMM15HS	13.48	15.02	5	25	5	0.2	11
ZMM15HSA	13.48	14.09	5	25	5	0.2	11
ZMM15HSB	13.95	14.56	5	25	5	0.2	11
ZMM15HSC	14.42	15.02	5	25	5	0.2	11
ZMM16HS	14.87	16.5	5	25	5	0.2	12
ZMM16HSA	14.87	15.5	5	25	5	0.2	12
ZMM16HSB	15.33	15.96	5	25	5	0.2	12
ZMM16HSC	15.79	16.5	5	25	5	0.2	12
ZMM18HS	16.34	18.3	5	30	5	0.2	13
ZMM18HSA	16.34	17.06	5	30	5	0.2	13
ZMM18HSB	16.9	17.67	5	30	5	0.2	13
ZMM18HSC	17.51	18.3	5	30	5	0.2	13
ZMM20HS	18.14	20.45	5	30	5	0.2	15
ZMM20HSA	18.14	18.96	5	30	5	0.2	15
ZMM20HSB	18.8	19.68	5	30	5	0.2	15
ZMM20HSC	19.52	20.45	5	30	5	0.2	15
ZMM22HS	20.23	22.61	5	30	5	0.2	17
ZMM22HSA	20.23	21.08	5	30	5	0.2	17
ZMM22HSB	20.76	21.65	5	30	5	0.2	17
ZMM22HSC	21.22	22.09	5	30	5	0.2	17
ZMM22HSD	21.68	22.61	5	30	5	0.2	17
ZMM24HS	22.26	24.81	5	35	5	0.2	19
ZMM24HSA	22.26	23.12	5	35	5	0.2	19
ZMM24HSB	22.75	23.73	5	35	5	0.2	19
ZMM24HSC	23.29	24.27	5	35	5	0.2	19
ZMM24HSD	23.81	24.81	5	35	5	0.2	19
ZMM27HS	24.26	27.64	5	45	5	0.2	21
ZMM27HSA	24.26	25.52	5	45	5	0.2	21
ZMM27HSB	24.97	26.26	5	45	5	0.2	21



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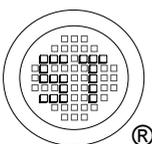
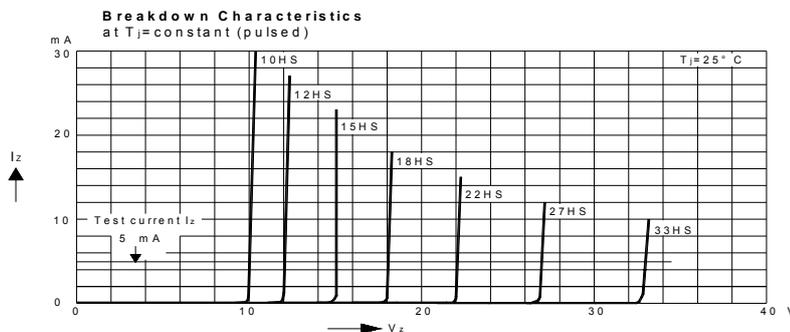
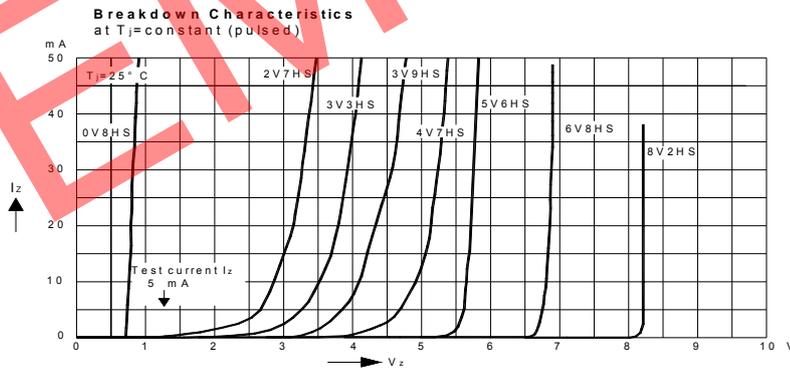
Dated : 18/07/2009

# ZMM...HS Series

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

Type	Zener Voltage <sup>1)</sup>			Dynamic Resistance		Reverse Leakage Current	
	$V_Z$		at $I_{ZT}$	$Z_{ZT}$	at $I_{ZT}$	$I_R$	at $V_R$
	Min. (V)	Max. (V)	(mA)	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	(V)
ZMM27HSC	25.63	26.95	5	45	5	0.2	21
ZMM27HSD	26.29	27.64	5	45	5	0.2	21
ZMM30HS	26.99	30.51	5	55	5	0.2	23
ZMM30HSA	26.99	28.39	5	55	5	0.2	23
ZMM30HSB	27.7	29.13	5	55	5	0.2	23
ZMM30HSC	28.36	29.82	5	55	5	0.2	23
ZMM30HSD	29.02	30.51	5	55	5	0.2	23
ZMM33HS	29.68	33.11	5	65	5	0.2	25
ZMM33HSA	29.68	31.22	5	65	5	0.2	25
ZMM33HSB	30.32	31.88	5	65	5	0.2	25
ZMM33HSC	30.9	32.5	5	65	5	0.2	25
ZMM33HSD	31.49	33.11	5	65	5	0.2	25
ZMM36HS	32.14	35.77	5	75	5	0.2	27
ZMM36HSA	32.14	33.79	5	75	5	0.2	27
ZMM36HSB	32.79	34.49	5	75	5	0.2	27
ZMM36HSC	33.4	35.13	5	75	5	0.2	27
ZMM36HSD	34.01	35.77	5	75	5	0.2	27
ZMM39HS	34.68	38.52	5	85	5	0.2	30
ZMM39HSA	34.68	36.47	5	85	5	0.2	30
ZMM39HSB	35.36	37.19	5	85	5	0.2	30
ZMM39HSC	36	37.85	5	85	5	0.2	30
ZMM39HSD	36.63	38.52	5	85	5	0.2	30

<sup>1)</sup> Tested with pulse  $t_p = 20$  ms



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