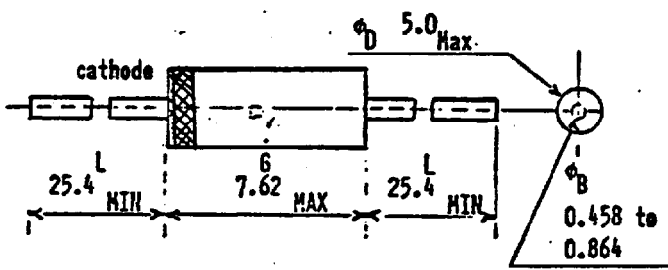


ITT SEMICONDUCTORS	CECC 50005 - 18
Specification available from INTERMETALL GmbH P.O. Box 840 D-7800 FREIBURG WEST GERMANY	Page 1 of 15 Issue 1 October 1982
Electronic components of assessed quality. Detail specification in accordance with: CECC 50000.	Manufacturer's type numbers ZY 3.9 to ZY 200
2. Outline and dimensions: 58 A 2 according to DIN 41883. Dimensions in mm. 	Section 1. and 3. Silicon voltage regulator diodes with high forward and reverse surge capability. Ambient rated Plastic encapsulation Assessment level F with additional test

4. Limiting Values (absolute maximum rating system). These apply over the operating temperature range unless otherwise quoted.

4.1 Operating ambient temperatures (see derating curve page 4).	T_{amb} min. -55°C max. 150°C
4.2 Storage temperatures	T_{stg} min. -55°C max. 150°C
4.3.1 Power dissipation (see derating curve page 4)	P_{tot} max. 1.32 W
4.4 Average forward current	I_F max. 400 mA
4.5.1 Continuous (direct) reverse current	I_{ZM} see page 3 col.1
4.5.2 Non-repetitive reverse power with 100 μs pulse	$P_{RRM(1)}$ max. 550 W
4.5.3 Non-repetitive reverse power with 10 ms pulse (see pages 9 and 13).	$P_{RRM(2)}$ max. 26 W

MARKING AND TERMINAL IDENTIFICATION

(1) TERMINAL IDENTIFICATION

Cathode terminal shall be identified by a contrasting cathode band.

(2) MARKING

Each diode shall bear the following marking:

The type number printed in a contrasting colour.

Each package containing one or more of these diodes shall bear:

- (a) The manufacturers type number.
- (b) The factory identification code.
- (c) The date code.
- (d) The number of this specification, i.e. CECC 50005-18
- (e) The quantity.

RELATED DOCUMENTS

CECC 00007	Sampling plans and procedures for inspection by attributes.
CECC 00100	CECC basic rules.
CECC 00200	Qualified parts list.
CECC 50000	Generic specification: Discrete semiconductor devices.

ORDERING INFORMATION

Orders for these diodes shall contain the following information:

Voltage regulator diode type ZY ... to
assessment level F of CECC 50005 - 18

Characteristicsat $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated

CECC 50005 - 18

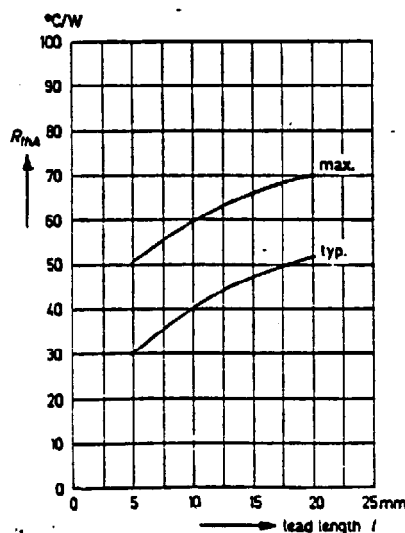
Page 3 Issue 1 October 1982

1	2	3	4	5	6	7	8	9	10	11	12
CECC Clause											
Charact. and cond. Type	V_{ZT}			I_{ZT}	r_{zj}	S_Z		V_R	I_{ZM}	V_{Z1}	V_{Z2}
	nom.	min.	max.		max.	min.	max.	$I_R = 1\mu\text{A}$	t_{amb} -45°C	SURGE TEST	SURGE TEST
	V	V	V	mA	Ω	$10^{-4}/^{\circ}\text{C}$	$10^{-4}/^{\circ}\text{C}$	V	mA	V	V
ZY 3,9	3,9	3,7	4,1	100	7	- 7	+ 2	-	240	6	9,8
ZY 4,3	4,3	4,0	4,6	100	7	- 7	+ 3	-	210	6,3	10,5
ZY 4,7	4,7	4,4	5,0	100	7	- 7	+ 4	-	180	6,7	11,5
ZY 5,1	5,1	4,8	5,4	100	5	- 6	+ 5	-	170	6,9	12
ZY 5,6	5,6	5,2	6,0	100	2	- 3	+ 5	1,5	160	7,4	13
ZY 6,2	6,2	5,8	6,6	100	2	- 1	+ 6	1,5	145	8,1	14,5
ZY 6,8	6,8	6,4	7,2	100	2	0	+ 7	2	130	8,8	15,5
ZY 7,5	7,5	7,0	7,9	100	2	0	+ 7	2	120	9,8	16,5
ZY 8,2	8,2	7,7	8,7	100	2	+ 3	+ 8	3,5	110	10,5	18
ZY 9,1	9,1	8,5	9,6	50	4	+ 3	+ 8	3,5	100	12	19,5
ZY 10	10	9,4	10,6	50	4	+ 5	+ 9	5	90	13	21
ZY 11	11	10,4	11,6	50	7	+ 5	+ 10	5	82	14,5	22,5
ZY 12	12	11,4	12,7	50	7	+ 5	+ 10	7	75	15,5	24
ZY 13	13	12,4	14,1	50	10	+ 5	+ 10	7	67	17	25,5
ZY 15	15	13,8	15,8	50	10	+ 5	+ 10	10	60	19,5	28,5
ZY 16	16	15,3	17,1	25	15	+ 6	+ 11	10	56	21	30
ZY 18	18	16,8	19,1	25	15	+ 6	+ 11	10	53	23,5	33
ZY 20	20	18,8	21,2	25	15	+ 6	+ 11	10	48	26	35,5
ZY 22	22	20,8	23,3	25	15	+ 6	+ 11	12	44	28,5	38,5
ZY 24	24	22,8	25,6	25	15	+ 6	+ 11	12	40	31	41
ZY 27	27	25,1	28,9	25	15	+ 6	+ 11	14	35	35	44,5
ZY 30	30	28	32	25	15	+ 6	+ 11	14	31	39	47,5
ZY 33	33	31	35	25	15	+ 6	+ 11	17	28	43	51
ZY 36	36	34	38	10	40	+ 6	+ 11	17	26	47	56
ZY 39	39	37	41	10	40	+ 6	+ 11	20	24	50,5	60,5
ZY 43	43	40	46	10	45	+ 7	+ 12	20	22	56	66,5
ZY 47	47	44	50	10	45	+ 7	+ 12	24	20	61	73
ZY 51	51	48	54	10	60	+ 7	+ 12	24	18	66,5	79
ZY 56	56	52	60	10	60	+ 7	+ 12	28	16,5	73	87
ZY 62	62	58	66	10	80	+ 8	+ 13	28	14	80,5	96
ZY 68	68	64	72	10	80	+ 8	+ 13	34	13	88,5	105
ZY 75	75	70	79	10	100	+ 8	+ 13	34	12	97,5	115
ZY 82	82	77	88	10	100	+ 8	+ 13	41	11	105	125
ZY 91	91	85	96	5	200	+ 9	+ 13	41	10	120	140
ZY 100	100	94	106	5	200	+ 9	+ 13	50	9	130	155
ZY 110	110	104	116	5	250	+ 9	+ 13	50	8,2	145	170
ZY 120	120	114	127	5	250	+ 9	+ 13	60	7,5	155	185
ZY 130	130	124	141	5	300	+ 9	+ 13	60	6,7	170	200
ZY 150	150	138	156	5	300	+ 9	+ 13	75	6	195	230
ZY 160	160	153	171	5	350	+ 9	+ 13	75	5,6	205	250
ZY 180	180	168	191	5	350	+ 9	+ 13	90	5,3	235	280
ZY 200	200	188	212	5	350	+ 9	+ 13	90	4,8	260	310

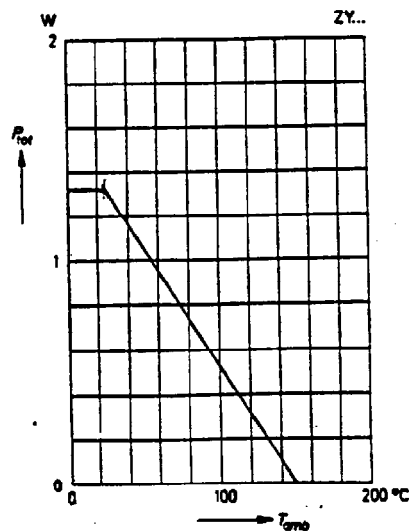
V_{ZT}	Working voltage at I_{ZT} as column 5. Tested with pulses.	See columns 2, 3, 4
r_{zj}	Maximum dynamic resistance at I_{ZT} $f = 1 \text{ kHz}$	See column 6
I_{ZT}	Zener test current	-
S_Z	Temperature coefficient of zener voltage.	See columns 7 and 8
V_R	Reverse voltage at specified zener current I_R .	See column 9
I_{ZM}	Maximum continuous zener current at specified ambient temperature t_{amb} .	See column 10
V_{Z1}	Maximum reverse voltage at a peak power of 26 W at a pulse width of 10 ms. Two pulses* separated by a minimum of 30 sec. $T_{amb} = 25^\circ\text{C}$.	See column 11
V_{Z2}	Maximum reverse voltage at a peak power of 550 W at a pulse width of 100 μs . Two pulses* separated by a minimum of 30 sec. $T_{amb} = 25^\circ\text{C}$.	See column 12

* For a description of the permissible shapes of current waveform in these tests see Appendix A.

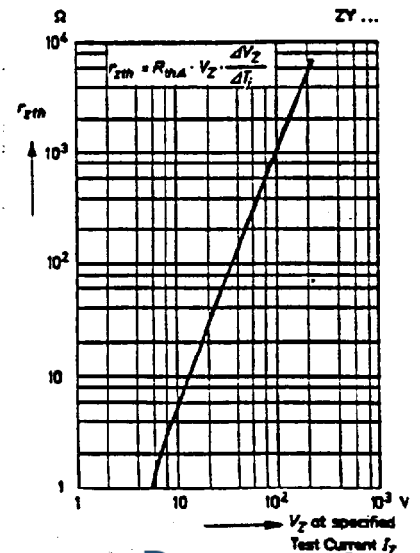
Thermal resistance versus lead length

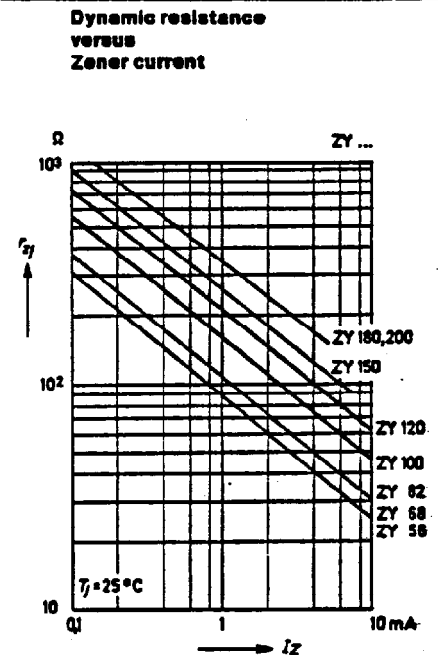


Admissible power dissipation versus ambient temperature



Thermal differential resistance versus Zener voltage





A graph showing the differential voltage ΔV_Z (Y-axis, ranging from -2 to 4) versus the current I_Z (X-axis, ranging from 1 to 100 mA) for various Zener diodes. The curves are labeled with diode types: ZY 64, ZY 56, ZY 47, ZY 39, ZY 82, and ZY 39. The curves show that ΔV_Z increases with I_Z for all diodes, with ZY 64 having the steepest slope and ZY 39 having the shallowest slope.

