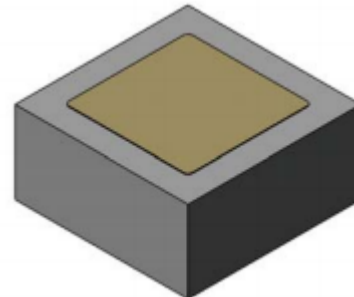


### Features

- All Junctions Completely Protected with Silicon Dioxide
- 0.5 W Capability with Proper Heat Sinking
- 50  $\mu$ A Low Operating Current
- Electrically Equivalent to 1N4678 - 1N4717

### Die



### Description

These 0.5 W zener diodes are electrically equivalent to the 1N4678 - 1N4717 series diodes. They are compatible with all wire bonding and die attach techniques with the exception of solder reflow.

These diodes are available in JANHC and JANKC per MIL-PRF-19500/127.

### Electrical Specifications: Zener Test Current = 50 $\mu$ A, $T_A = +25^\circ\text{C}$

Part # <sup>1</sup>	Zener Voltage <sup>3</sup> $V_Z$	Voltage Regulation <sup>2</sup> $3V_Z$	Reverse Voltage $I_R @ V_R$		DC Zener Current
	Nominal	Maximum	Maximum		Maximum
	V	$\Omega$	$\mu$ A	V	mA
CD4678	1.8	0.70	7.5	10.	120.0
CD4679	2.0	0.70	5.0	1.0	110.0
CD4680	2.2	0.75	4.0	1.0	100.0
CD4681	2.4	0.80	2.0	1.0	90.0
CD4682	2.7	0.80	1.0	1.0	90.0
CD4683	3.0	0.90	0.8	1.0	85.0
CD4684	3.3	0.95	7.5	1.5	80.0
CD4685	3.6	0.95	7.5	2.0	75.0
CD4686	3.9	0.97	5.0	2.0	70.0
CD4687	4.3	0.99	4.0	2.0	65.0
CD4688	4.7	0.99	10.0	3.0	60.0
CD4689	5.1	0.97	10.0	3.0	55.0
CD4690	5.6	0.96	10.0	4.0	50.0
CD4691	6.2	0.95	10.0	5.0	45.0
CD4692	6.8	0.90	10.0	5.1	35.0
CD4693	7.5	0.75	10.0	5.7	31.8
CD4694	8.2	0.50	1.0	6.2	29.0
CD4695	8.7	0.10	1.0	6.6	27.4
CD4696	9.1	0.08	1.0	6.9	26.2
CD4697	10.0	0.10	1.0	7.8	24.8

(Continued next page)

<sup>1</sup> \* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

# CD4678 thru CD4717



## Zener Diode Chip Series

Rev. V1

### Electrical Specifications: Zener Test Current = 50 $\mu$ A, $T_A = +25^\circ\text{C}$

Part # <sup>1</sup>	Zener Voltage <sup>3</sup> $V_Z$	Voltage Regulation <sup>2</sup> $3V_Z$	Reverse Voltage $I_R @ V_R$		DC Zener Current
	Nominal	Maximum	Maximum		Maximum
	V	$\Omega$	$\mu\text{A}$	V	mA
CD4698	11.0	0.11	0.05	8.4	21.6
CD4699	12.0	0.12	0.05	9.1	20.4
CD4700	13	0.13	0.05	9.8	19.0
CD4701	14	0.14	0.05	10.6	17.5
CD4702	15	0.15	0.05	11.4	16.3
CD4703	16	0.16	0.05	12.1	15.4
CD4704	17	0.17	0.05	12.9	14.5
CD4705	18	0.18	0.05	13.6	13.2
CD4706	19	0.19	0.05	14.4	12.5
CD4707	20	0.20	0.01	15.2	11.9
CD4708	22	0.22	0.01	16.7	10.8
CD4709	24	0.24	0.01	18.2	9.9
CD4710	25	0.25	0.01	19.0	9.5
CD4711	27	0.27	0.01	20.4	8.8
CD4712	28	0.28	0.01	21.2	8.5
CD4713	30	0.30	0.01	22.8	7.9
CD4714	33	0.33	0.01	25.0	7.2
CD4715	36	0.36	0.01	27.3	6.6
CD4716	39	0.39	0.01	29.8	6.1
CD4717	43	0.43	0.01	32.6	5.5

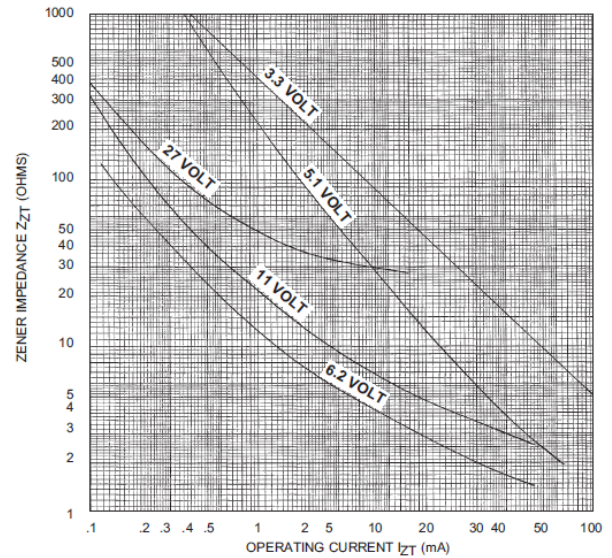
1. The JEDEC type numbers shown above have a standard tolerance of  $\pm 5\%$  of the nominal Zener voltage.  $V_Z$  is measured with the diode in thermal equilibrium at  $25^\circ\text{C} \pm 3^\circ\text{C}$ .
2.  $V_Z @ 100 \mu\text{A}$  minus  $V_Z @ 10 \mu\text{A}$ .
3. Zener voltage is read using a pulse measurement, 10 milliseconds maximum.

### Absolute Maximum Ratings<sup>4,5</sup>

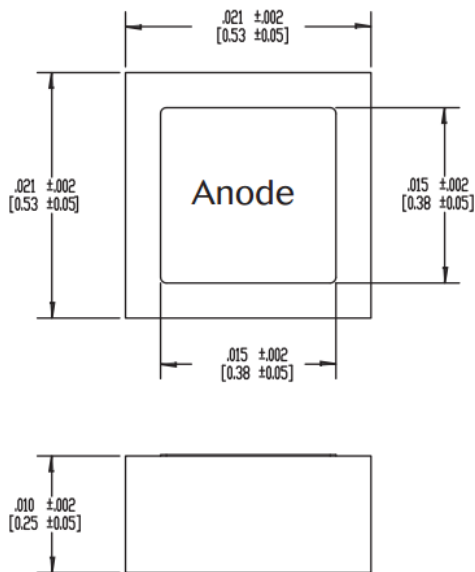
Parameter	Absolute Maximum
Forward Voltage	1.5 V @ 200 mA
Operating Temperature	-65°C to +175°C
Storage Temperature	-65°C to +175°C

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

### Zener Impedance vs. Operating Current



### Die



Metallization: Top: (anode) AL  
Back: (cathode) Au

AL Thickness: 25,000 Å Minimum

Gold Thickness: 4,000 Å Minimum

Chip Thickness: 10 mils

Circuit Layout Data: For Zener operation, cathode must be operated positive with respect to anode.

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