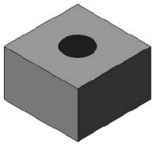
CD914, CD3600, CD4148, CD4150, CD4153, CD4454, CD4531, CD6640, CD6642

Silicon Switching Diode Chips

Rev. V2

Features

- All Junctions Completely Protected with Silicon Dioxide



Available in JANHC and JANKC per:

- CD914, CD4148 & CD4531: MIL-PRF-19500/116
- CD4153: MIL-PRF-19500/133
- CD6642: MIL-PRF-19500/578
- CD6640: MIL-PRF-19500/609

Description

These silicon switching diode chips are compatible with all wire bonding and die attach techniques with the exception of solder reflow.

Electrical Specifications: T_A = +25°C (unless otherwise specified)

Parameter	Test Conditions	Units	CD914	CD4148 CD4531	CD6642	CD4454
Breakdown Voltage	@ 100 mA	Volts (min)	100	100	100	75
VRWM	—	Volts (pk)	75	75	75	50
IO	—	mA	200	200	300	200
Forward Voltage1	I_F = 10 mA	Vdc	0.8	0.8	0.8	1
Forward Voltage2	I_F = 50 mA	Vdc	1.2	N/A	N/A	N/A
Forward Voltage3	I_F = 100 mA	Vdc	N/A	1.2	1.2	N/A
Trr	—	nsec	5	5	5	4
Reverse Current1	@ 20 Vdc	nA	25	25	25	N/A
Reverse Current2	—	µA @ V	0.5 @ 75	0.5 @ 75	0.5 @ 75	0.1 @ 50
Reverse Current3	20 Vdc, T_A = +150°C	µA	35	35	50	N/A
Reverse Current4	T_A = +150°C	µA @ V	75 @ 75	75 @ 75	100 @ 75	100 @ 50
Capacitance	@ 0 V	pF	4	4	5	2
Capacitance	@1.5 V	pF	2.8	2.8	2.8	N/A

Parameter	Test Conditions	Units	CD3600	CD4150	CD6640	CD4153
Breakdown Voltage	I_R = 10 mA[1]	Volts (min)	75	75	75	100[1]
VRWM	—	Volts (pk)	50	50	50	75
Reverse Current1	V_R = 50 Vdc	µA Vdc	0.1	0.1	0.1	0.05
Reverse Current2	V_R = 50 Vdc T_A = +150°C	µA Vdc	100	100	90	50
Capacitance	V_R = 0; f = 1 MHz; ac signals = 50 mV (p-p)	pF	2.5	2.5	2.5	2
Trr	µA	nsec	4	4	4	4

1. @ 5 µA for CD4153

1 * Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

Forward Voltage Limits for CD3600, CD4150 and CD6640:

Parameter	Test Conditions	Limits	Minimum	Maximum
Forward Voltage1	IF = 1 mA dc (Pulsed)	Vdc	0.54	0.62
Forward Voltage2	IF = 10 mA dc (Pulsed)	Vdc	0.68	0.74
Forward Voltage3	IF = 50 mA dc (Pulsed)	Vdc	0.76	0.86
Forward Voltage4	IF = 100 mA dc (Pulsed)	Vdc	0.82	0.92
Forward Voltage5	IF = 200 mA dc (Pulsed)	Vdc	0.87	1.00

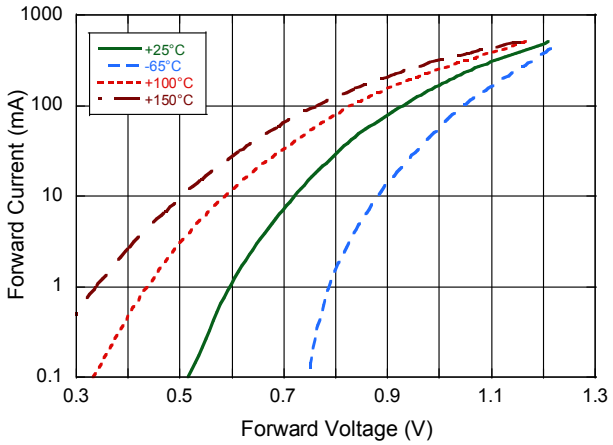
Forward Voltage Limits for CD4153:

Parameter	Test Conditions	Limits	Minimum	Maximum
Forward Voltage1	I_F = 100 µA dc	Vdc	0.49	0.55
Forward Voltage2	I_F = 250 µA dc	Vdc	0.53	0.59
Forward Voltage3	I_F = 1 mA dc	Vdc	0.59	0.67
Forward Voltage4	I_F = 2 mA dc	Vdc	0.62	0.70
Forward Voltage5	I_F = 10 mA dc	Vdc	0.70	0.81
Forward Voltage6	I_F = 20 mA dc	Vdc	0.74	0.88

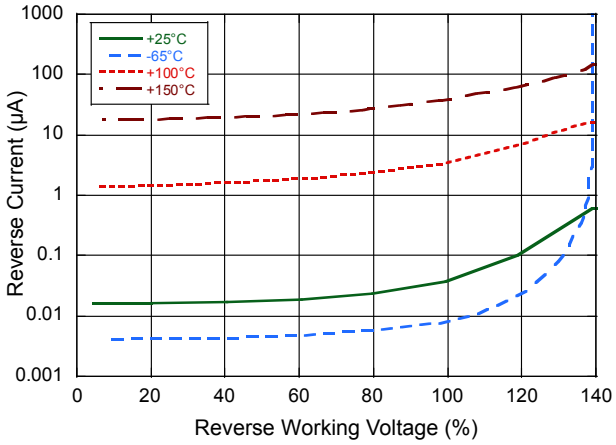
Absolute Maximum Ratings[1,2]

Parameter	Absolute Maximum
Operating Temperature	-55°C to +175°C
Storage Temperature	-65°C to +175°C

Forward Current vs. Forward Voltage

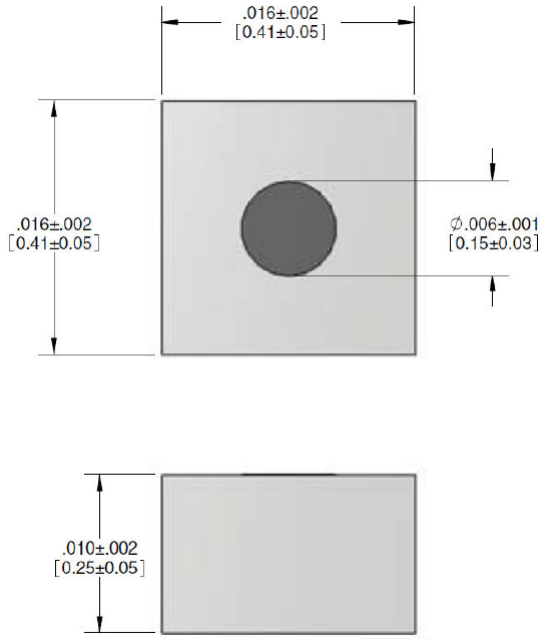


Reverse Current vs. Reverse Voltage



All temperature shown on graphs is junction temperature.

Die



Metallization:	Top: (anode) AL Back: (cathode) Au
AL Thickness:	25,000 Å Minimum
Gold Thickness:	4,000 Å Minimum
Chip Thickness:	10 mils