CDSU4148

List

CDSU4148

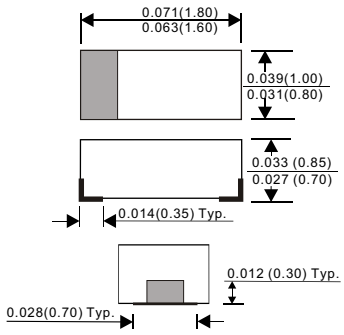
150mA Surface Mount Switching Diode-75V

Features

- Batch process design.
- Fast speed switching.
- For general purpose switching application.
- High conductance.
- Silicon epitaxial planar chip.
- Lead-free parts meet RoHS requirments.

Package outline

0603 (SOD-523)



Dimensions in inches and (millimeters)

Mechanical data

- Epoxy: UL94-VO rated flame retardant
- Case : Molded plastic, 0603 (SOD-523)
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.002 gram

Maximum ratings (AT T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Repetitive peak reverse voltage		V_{RRM}			75	V
Reverse voltage		V_R			75	V
Peak forward surge current	t_p = 1 us	I_{FSM}			1000	mA
Forward current		I_F			150	mA
Average forward current	V_R = 0 V	I_{FAV}			150	mA
Power dissipation		P_V			500	mW
Junction temperature		T_j	-55		+150	°C
Storage temperature		T_{STG}	-65		+175	°C
Forward voltage	I_F = 50 mA	V_F		0.86	1.00	V
Reverse current	V_R = 20 V	I_R			25	nA
	V_R = 75 V	I_R			2.5	uA
Diode capacitance	V_R = 0 V , f = 1MHz , V_{HF} = 50mV	C_D			4.0	pF
Reverse recovery time	I_F = 10 mA , V_R = 6V , I_{RR} = 0.1 X I_R , R_L = 100 $_{OHM}$	t_{rr}			4	ns

Rating and characteristic curves (CDSU4148)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

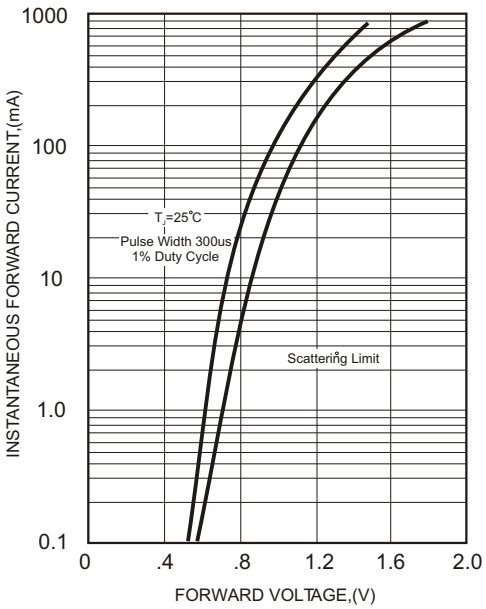


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

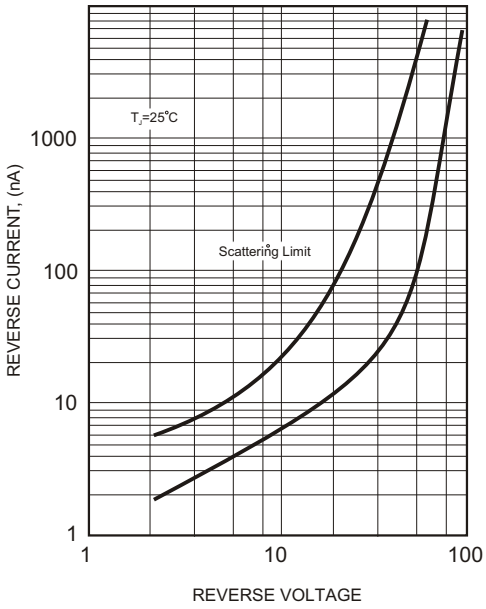


FIG.2 - TYPICAL DIODE CAPACITANCE

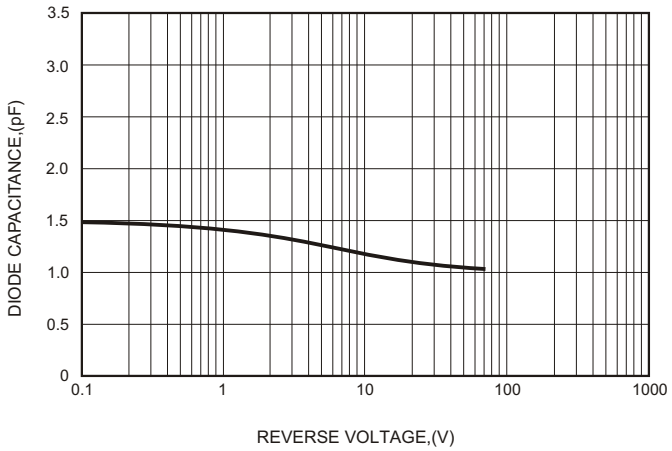
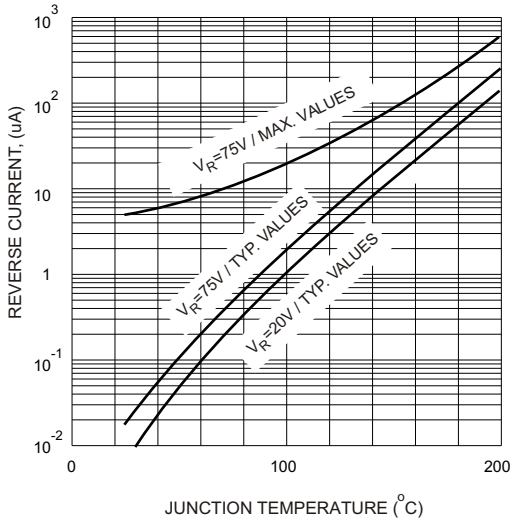


FIG.4 - REVERSE CURRENT VS JUNCTION TEMPERATURE



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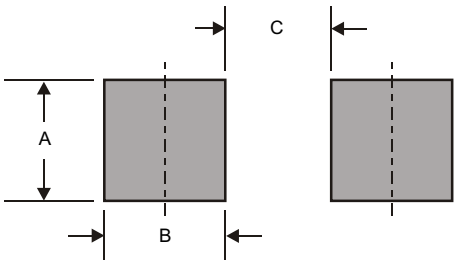
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
CDSU4148	-

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
0603	0.032(0.80)	0.024(0.60)	0.044(1.10)

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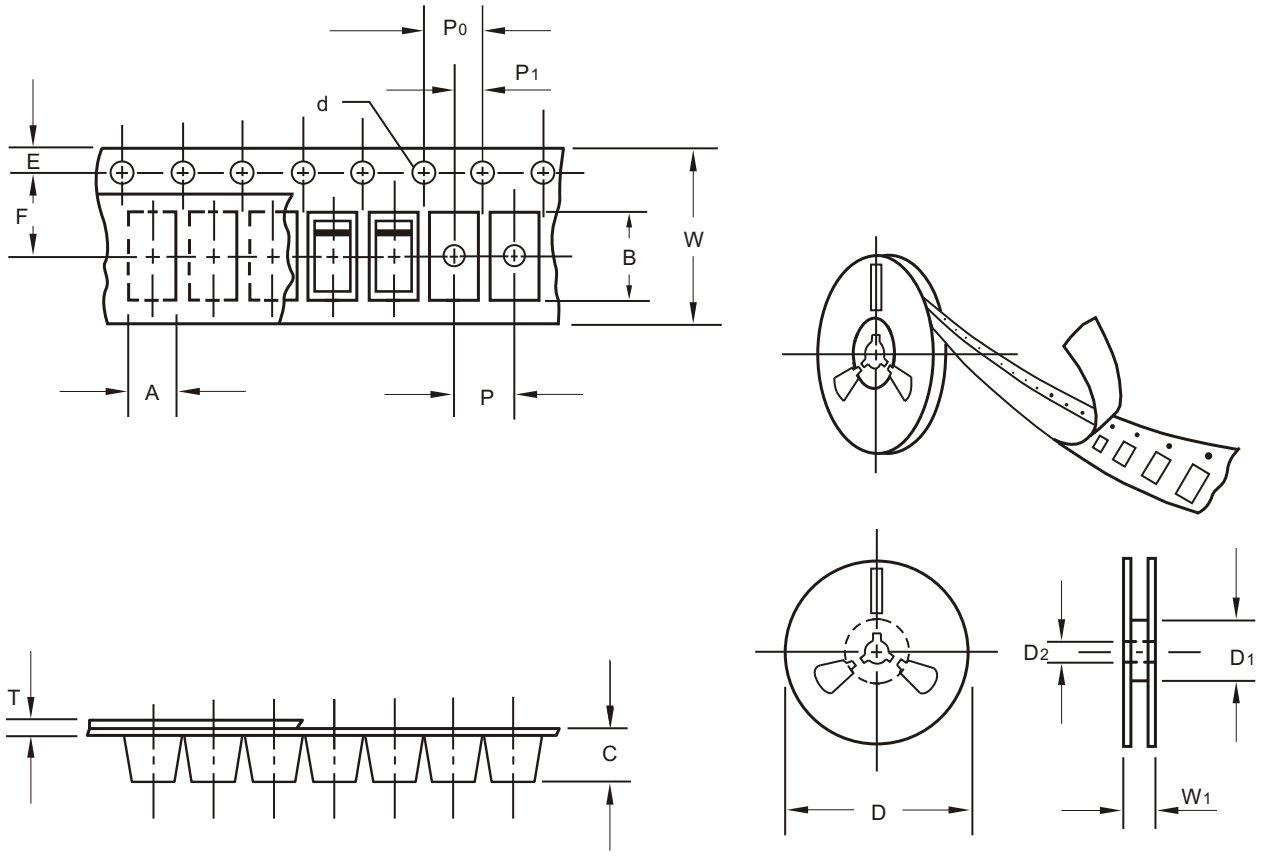
Packing information



unit:mm

Item	Symbol	Tolerance	0603
Carrier width	A	0.1	1.00
Carrier length	B	0.1	1.85
Carrier depth	C	0.1	1.00
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	50.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W_1	1.0	11.40

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

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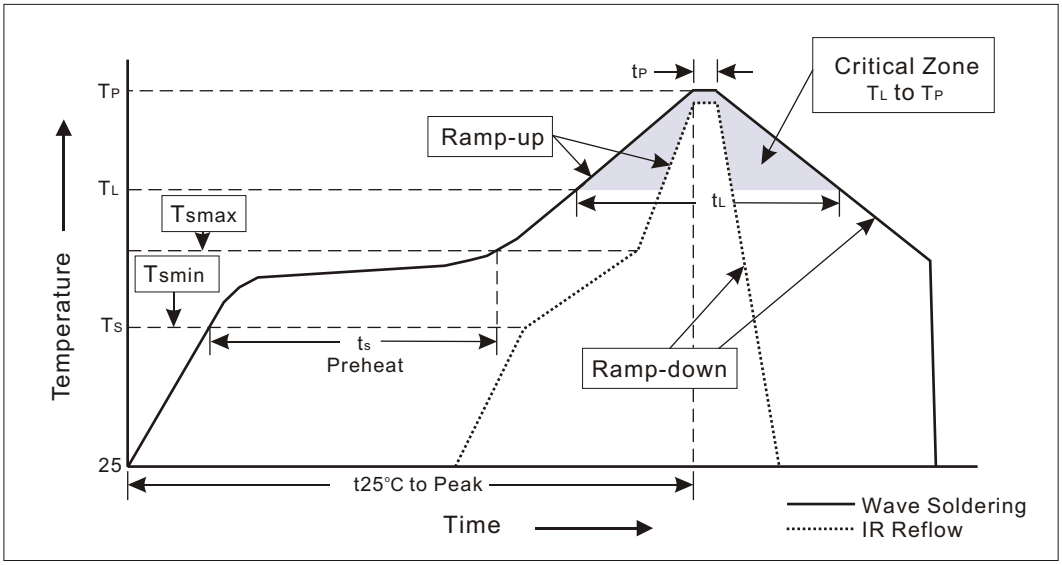
Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
0603	7"	4000	4.0	20,000	180*180*60	178	370*350*200	200,000	5.7

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=10°C~35°C Humidity=65%±15%

2.Reflow soldering of surface-mount devices



3.Flow (wave)soldering (solder dipping)

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 100°C 150°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 183°C 60~150sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25℃ to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_R=80% rate at T_A=150°C for 168 hrs.	MIL-STD-750D METHOD-1026
4. Forward Operation Life	Rated average rectifier current at T=25°C for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	T_A = 25°C, I_F = I_O On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	15P_{SIG} at T_A=121°C for 4 hrs.	
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
9. Forward Surge	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
10. Humidity	at T_A=65°C, RH=98% for 1000hrs.	MIL-STD-750D METHOD-1038
11. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031
12. Solvent Resistance	Dip into Freon at 25°C for 1 min.	MIL-STD-202F METHOD-215