

**High voltage switching (double) diodes**

# CMBD2004/A/C/SN3

## Description

High voltage switching diodes encapsulated in a SOT-23 small plastic SMD package. Single diodes and double diodes with different pinning are available.

## Features

- Fast switching speed
- Low forward voltage drop
- Small plastic SMD package

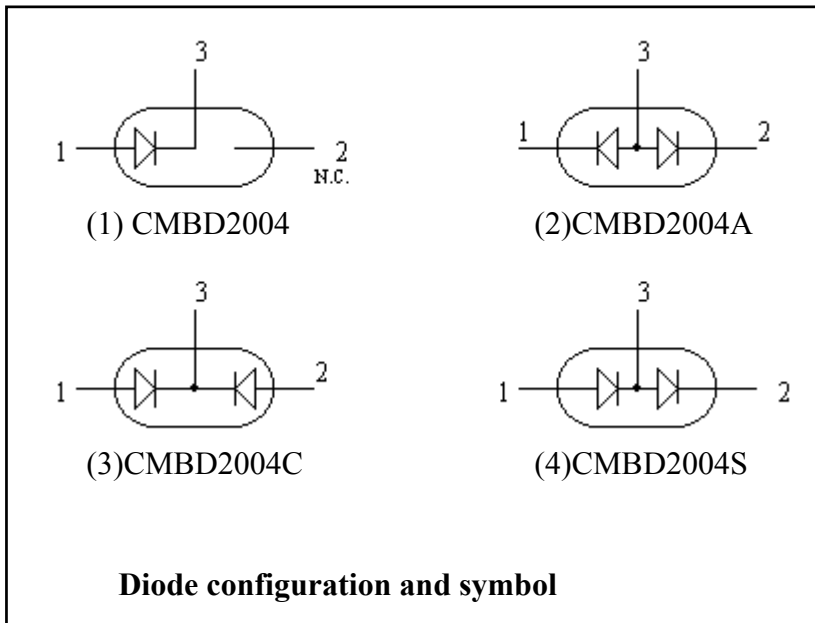
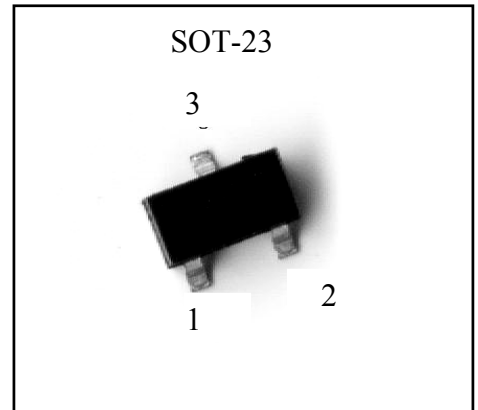
## Mechanical Data

- Case : SOT-23, molded plastic
- Terminals : Solderable per MIL-STD-202 Method 208
- Weight : 0.008 grams(approx.)

## Pinning

Pin	Description			
	CMBD2004	CMBD2004A	CMBD2004C	CMBD2004S
1	A	K1	A1	A1
2	NC	K2	A2	K2
3	K	A1,A2	K1,K2	K1,A1

## Outline



## Marking:

Type	Marking Code
CMBD2004 N3	D53
CMBD2004AN3	DB8
CMBD2004CN3	DB7
CMBD2004SN3	DB6



**Absolute Maximum Ratings**(Ta=25°C , unless otherwise specified)

- Maximum Temperatures  
 Storage Temperature Tstg ..... -65~+150 °C  
 Junction Temperature Tj ..... +150 °C
- Maximum Power Dissipation  
 Total Power Dissipation Ptot (Note)..... 350 mW
- Maximum Voltages and Currents  
 Repetitive Peak Reverse Voltage VRRM ..... 300 V  
 DC Blocking Voltage VR..... 240V  
 RMS Reverse Voltage VR(RMS)..... 170V  
 Continuous Forward Current IF (Note)..... 225 mA  
 Peak Repetitive Forward Current IFRM (Note).....625 mA.  
 Surge Non-repetitive Forward Current IFSM @ tp=1μs ..... 4A  
 @ tp=1s..... 1A
- Thermal Resistance, Junction to Ambient Air RθJA.....357°C/W

Note : Parts mounted on FR-4 board. For double diodes, Ptot is the total power dissipation of both diodes.

**Characteristics** (Ta=25°C)

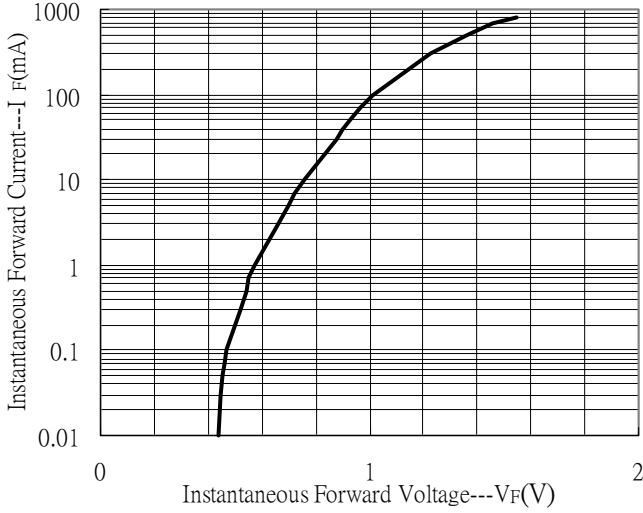
Characteristic	Symbol	Condition	Min.	Max.	Unit
Reverse Breakdown Voltage	VBR	IR=100μA	300	-	V
Forward Voltage (Note)	V <sub>F</sub> (1)	IF=20mA	-	870	mV
	V <sub>F</sub> (2)	IF=100mA	-	1000	mV
Reverse Leakage Current (Note)	IR(1)	VR=240V, Tj=25°C	-	100	nA
	IR(2)	VR=240V, Tj=150°C		100	μA
Diode Capacitance	CD	VR=0V, f=1MHz	-	5	pF
Reverse Recovery Time	t <sub>rr</sub>	IF=IR=30mA RL=100Ω measured at IR=3mA	-	50	ns

Notes: Pulse test, tp=380μs, duty cycle<2%.

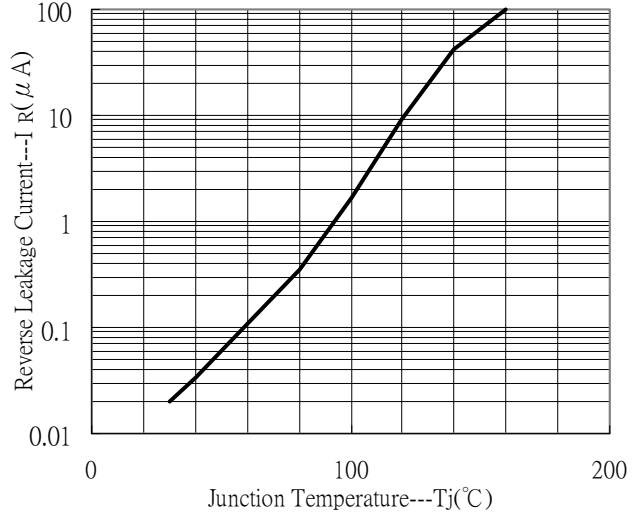


### Characteristic Curves

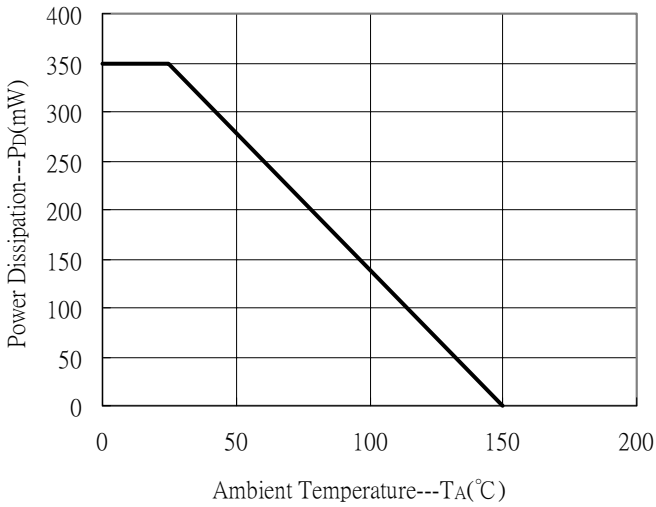
Forward Characteristics



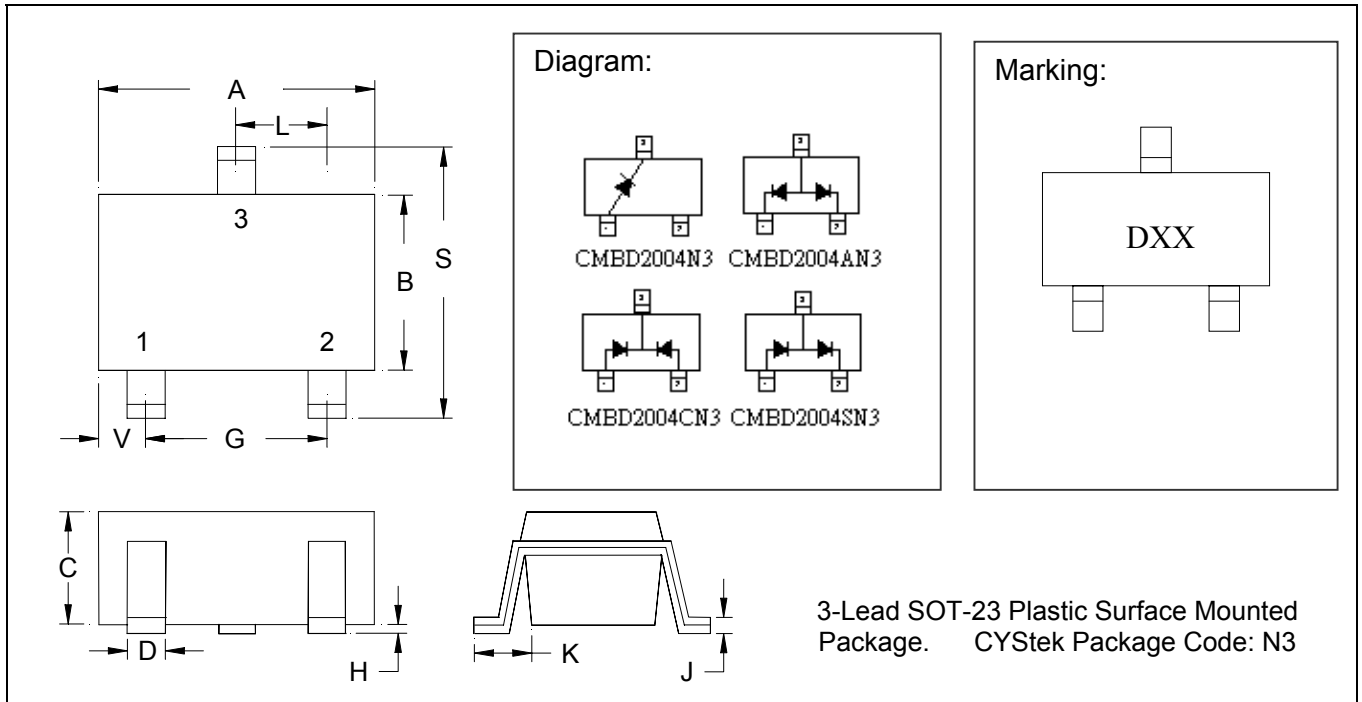
Reverse Leakage Current vs Junction Temperature



Power Derating Curve



**SOT-23 Dimension**



- CMBD2004 N3 : Single Diode (Marking Code D53)
- CMBD2004AN3 : Common Anode. (Marking Code DB8)
- CMBD2004CN3 : Common Cathode. (Marking Code DB7)
- CMBD2004SN3 : Series Connected. (Marking Code DB6)

\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0034	0.0070	0.85	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

**Notes:** 1.Controlling dimension: millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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