



CHIP RESISTOR & CHIP DIODE

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LIZ Electronics established in 1998, and setup LIZ Kunshan factory in 2000. Factory landed 20,000m².

LIZ as a Taiwan Kinpo & Compal group invested company, lead by Compal management team, managing from research & development, production, quality control and marketing, professionally provide chip products for electronics industrial purpose.

LIZ combined Kinpo & Compal group chip manufacturing and semiconductor technology to produce chip resistor and chip diode, become a leading chip diode manufacturer, provide chip product & technical service for Taiwan, Mainland, South-East Asia and India electronics industry.

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CHIP RESISTOR



Chip Resistors Selection Guide

■ General Purpose Chip Resistor

SERIES	SIZE/ mm	POWER RATING	MAX WORKING VOLTAGE	TOLERANCE	RESISTANCE RANGE
CR0402	0402 1.00*0.50	1/16W	50V	1%	1Ω-10MΩ
				5%	1Ω-10MΩ
CR0603	0603 1.60*0.80	1/10W	50V	0.5%	10Ω-1MΩ
				1%	1Ω-10MΩ
				5%	1Ω-22MΩ
CR0805	0805 2.00*1.25	1/8W	150V	0.5%	10Ω-1MΩ
				1%	1Ω-10MΩ
				5%	1Ω-22MΩ
CR1206	1206 3.10*1.60	1/4W	200V	0.5%	10Ω-1MΩ
				1%	1Ω-10MΩ
				5%	1Ω-22MΩ
CR1210	1210 3.10*2.50	1/2W	200V	1%	1Ω-10MΩ
				5%	1Ω-22MΩ
CR2010	2010 5.00*2.50	3/4W	200V	1%	1Ω-10MΩ
				5%	1Ω-22MΩ
CR2512	2512 6.25*3.10	1W	200V	1%	1Ω-10MΩ
				5%	1Ω-22MΩ

■ Zero Ohm Jumper Resistor

SERIES	SIZE	RATED CURRENT	TOLERANCE	RESISTANCE RANGE
CR0402	0402	1A	<0.05Ω	0Ω
CR0603	0603	1A		
CR0805	0805	1.5A		
CR1206	1206	1.9A		
CR1210	1210	2.2A		
CR2010	2010	3A		
CR2512	2512	3A		

■ Chip Resistor Array

SERIES	SIZE/mm	POWER RATING	MAX WORKING VOLTAGE	TOLERANCE	RESISTANCE RANGE
CA022A	0404 1.00*1.00	1/16W	50V	1%	10Ω-1MΩ
				5%	1Ω-1MΩ
CA024A	0804 2.00*1.00	1/16W	50V	1%	10Ω-1MΩ
				5%	1Ω-1MΩ
CA034A	1206 3.20*1.50	1/10W	50V	1%	10Ω-1MΩ
				5%	1Ω-1MΩ

RESISTOR NETWORK



Resistor Network Selection Guide

■ Resistor Network

SERIES	SIZE / mm	POWER RATING	MAX WORKING VOLTAGE	TOLERANCE	RESISTANCE RANGE
RNA	Refer Spec	1/8W	100V	2%	10Ω-500KΩ
				5%	10Ω-500KΩ
RNB	Refer Spec	1/5W	100V	2%	10Ω-500KΩ
				5%	10Ω-500KΩ

CHIP DIODE



Chip Diode Selection Guide

■ Chip Switching Diode

SERIES	SIZE/mm	RE. PEAK REVERSE VOLTAGE/ VRRM	AVERAGE RETIFIED CURRENT/ IF(AV)	POWER DISSIPATION/ Ptot	FORWARD VOLTAGE/ VF		REVERSE RECOVERY TIME/ Trr
						IF	
CD4148WP	1206 3.10*1.60	75V	150mA	400mW	1V	10 mA	4ns
CD4148WSP	0805 2.00*1.25	75V	150mA	400mW	1V	10 mA	4ns
CD4148WTP	0603 1.60*0.80	75V	150mA	400mW	1V	10 mA	4ns

■ Chip Zener Diode

SERIES	SIZE/mm	POWER DISSIPATION/ Ptot	FORWARD VOLTAGE/ VF		NOMINAL ZENER VOLTAGE/ Vz	MAXIMUM ZENER IMPEDANCE/ ZzT		MAXIMUM ZENER IMPEDANCE/ ZzK		
				IF			IzT		IzK	
CDZ55B	1206 3.20*1.50	500mW	1.5V	200 mA	±2%	5 mA	Refer spec.	5 mA	Refer spec.	1 mA
CDZ55C	1206 3.20*1.50	500mW	1.5V	200 mA	±5%	5 mA				
CDZ55B-S	0805 2.00*1.25	500mW	1.5V	200 mA	±2%	5 mA				
CDZ55C-S	0805 2.00*1.25	500mW	1.5V	200 mA	±5%	5 mA				

■ Chip Schottky Diode

SERIES	SIZE/mm	RE. PEAK REVERSE VOLTAGE/ VRRM	AVERAGE RETIFIED CURRENT/ IF(AV)	PEAK FORWARD SURGE CURRENT/ IFSM		FORWARD VOLTAGE/ VF		REVERSE CURRENT/ IR	
					ts		IF		VR
CDBAB140AP	2010 4.80*2.40	40V	1A	30A	8.3 ms	0.52V	1A	200uA	40 V
CDBAB0540WP	1206 3.20*1.50	40V	0.5A	5.5A	8.3 ms	0.51V	0.5 A	20uA	40 V
CDBASD103WP	1206 3.20*1.50	40V	0.35A	2A	10 us	0.37V	20 mA	5uA	30 V
CDBASD103WSP	0805 2.00*1.25	40V	0.35A	2A	10 us	0.37V	20 mA	5uA	30 V

CHIP DIODE



Chip Diode Selection Guide

■ Chip Switching Diode Array

SERIES	SIZE/mm	RE. PEAK REVERSE VOLTAGE/ VRRM	AVERAGE RECTIFIED CURRENT/ IF(AV)	POWER DISSIPATION/ Ptot	FORWARD VOLTAGE/ VF		REVERSE RECOVERY TIME/ Trr
						IF	
CDMMBD4148	3.0*2.5	75V	150mA	350mW	1V	10 mA	4ns
CDBAV99	3.0*2.5	70V	150mA	300mW	0.855 V	10 mA	6ns
CDBAV70	3.0*2.5	70V	150mA	300mW	0.855 V	10 mA	6ns
CDBAW56	3.0*2.5	70V	150mA	300mW	0.855 V	10 mA	6ns

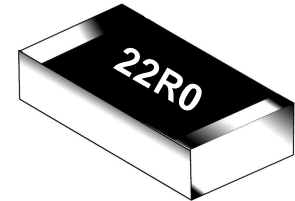
CHIP RESISTOR



General Purpose Chip Resistors

■ Feature

1. Surface mounted device (SMD), suitable for auto-placement surface mounting application
2. Matte tin plating termination layer for reflow & wave soldering
3. Aluminum oxide ceramic substrate as body, high thermal and mechanical resist



■ Application

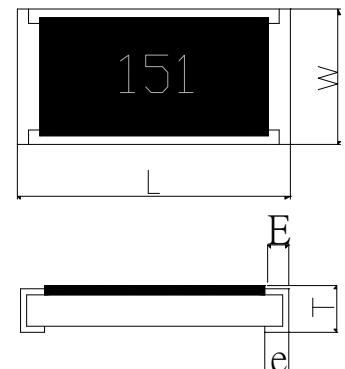
1. For general purpose on electronics circuit board.
2. Computer sector: mother board, notebook, LCD monitor, display card, hard disk
3. Communication sector: mobile phone, telephone
4. Consumer multimedia sector: LCD monitor, DVD player, MP3/4 player, digital camera
5. Power supply sector: DC power, adapter, battery charger
6. General house & industrial electronics equipments: air-conditioner, refrigerator

■ Electrical Characteristics

SERIES	CR0402	CR0603	CR0805	CR1206	CR1210	CR2010	CR2512
Size Code in Inch(mm)	0402(1005)	0603(1608)	0805(2012)	1206(3216)	1210(3225)	2010(5025)	2512(6432)
Operating Temperature	-55°C~+125°C	-55°C~+125°C	-55°C~+125°C	-55°C~+125°C	-55°C~+125°C	-55°C~+125°C	-55°C~+125°C
Power Rating @T _{amb} =70°C	1/16W	1/10W	1/8W	1/4W	1/2W	3/4W	1W
Maximum Working Voltage	50V	50V	150V	200V	200V	200V	200V
Maximum Overload Voltage	100V	100V	300V	400V	400V	400V	400V
Dielectric Withstand Voltage	50V	100V	300V	500V	500V	500V	500V
Resistance Range	0.5%		10Ω-1MΩ	10Ω-1MΩ	10Ω-1MΩ		
	1%(E96)	1Ω-10MΩ	1Ω-10MΩ	1Ω-10MΩ	1Ω-10MΩ	1Ω-10MΩ	1Ω-10MΩ
	5%(E24)	1Ω-10MΩ	1Ω-22MΩ	1Ω-22MΩ	1Ω-22MΩ	1Ω-22MΩ	1Ω-22MΩ
	<0.05Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω
Temperature Coefficient	1Ω-10Ω	-250 ~+500 ppm/°C	-250 ~+500 ppm/°C	-250 ~+500 ppm/°C	-250 ~+500 ppm/°C	-250 ~+500 ppm/°C	-250 ~+500 ppm/°C
	>10Ω-22MΩ	±200ppm/°C	±200ppm/°C	±200ppm/°C	±200ppm/°C	±200ppm/°C	±200ppm/°C
	>10Ω-1MΩ for 0.5%	±100ppm/°C	±100ppm/°C	±100ppm/°C	±100ppm/°C	±100ppm/°C	±100ppm/°C
	>10Ω-10MΩ for 1%	±100ppm/°C	±100ppm/°C	±100ppm/°C	±100ppm/°C	±100ppm/°C	±100ppm/°C
Rated Continue Working Voltage= $\sqrt{\text{rated power(W)} \times \text{Resistance value}(\Omega)}$ or Maximum Working Voltage listed above, whichever is lower							
Zero Ohm Jumper Rated Current	1A	1A	1.5A	1.9A	2.2A	3A	3A

■ Dimension (in mm)

SERIES	CR0402	CR0603	CR0805	CR1206	CR1210	CR2010	CR2512
L	1.00±0.05	1.60±0.15	2.00±0.15	3.10±0.15	3.10±0.15	5.00±0.20	6.25±0.20
W	0.50±0.05	0.80±0.10	1.25±0.15	1.60±0.15	2.50±0.15	2.50±0.20	3.10±0.20
T	0.35±0.05	0.45±0.10	0.50±0.10	0.55±0.10	0.55±0.15	0.55±0.15	0.55±0.15
E	0.15±0.10	0.20±0.20	0.35±0.20	0.45±0.25	0.45±0.25	0.65±0.25	0.85±0.25
e	0.20±0.10	0.30±0.20	0.40±0.20	0.40±0.25	0.60±0.35	0.60±0.25	0.95±0.25



CHIP RESISTOR



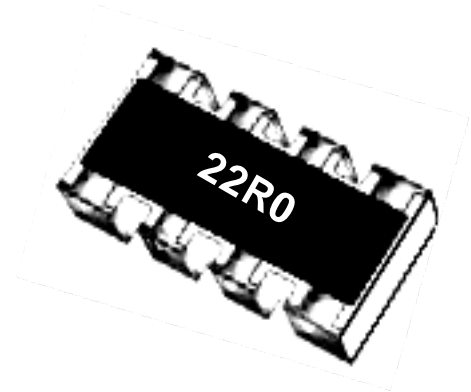
Chip Resistor Array

■ Feature

1. Chip integrated, surface mounted device (SMD), suitable for auto-placement surface mounting application
2. Matte tin plating termination layer for reflow & wave soldering
3. Aluminum oxide ceramic substrate as body, high thermal and mechanical resist

■ Application

1. For SMT efficiency, circuit board space minimize & cost saving, suitable for: Telecom, Mobile Phone, Notebook computer, all-in-one Mother Boards, Hard-disk, etc.
2. Termination pitch matched with fine pitch of IC, reduces PC board space and improves wiring layout

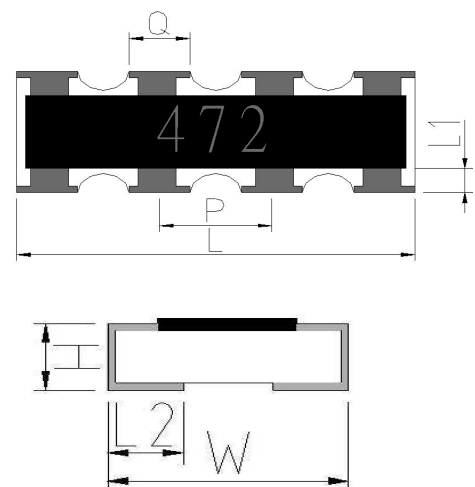


■ Electrical Characteristics

SERIES		CA022A	CA024A	CA034A
Size Code in Inch(mm)		0402x2(1005x2)	0402x4(1005x4)	0603x4(1608x4)
Operating Temperature		-55°C~+125°C	-55°C~+125°C	-55°C~+125°C
Power Rating @T _{amb} =70°C		1/16W	1/16W	1/10W
Maximum Working Voltage		50V	50V	50V
Maximum Overload Voltage		100V	100V	100V
Dielectric Withstand Voltage		50V	50V	100V
Resistance Range	1%(E96)	10Ω-1MΩ	10Ω-1MΩ	10Ω-1MΩ
	5%(E24)	1Ω-1MΩ	1Ω-1MΩ	1Ω-1MΩ
	<0.05Ω	0Ω	0Ω	0Ω
Temperature Coefficient	1Ω-10Ω	-250 ~+500 ppm/°C	-250 ~+500 ppm/°C	-250 ~+500 ppm/°C
	>10Ω-1MΩ	±200ppm/°C	±200ppm/°C	±200ppm/°C
Rated Continue Working Voltage= $\sqrt{\text{rated power(W)} \times \text{Resistance value}(\Omega)}$ or Maximum Working Voltage listed above, whichever is lower				
Zero Ohm Jumper Rated Current		0.63A	0.63A	1A

■ Dimension (in mm)

SERIES	CA022A	CA024A	CA034A
L	1.00±0.10	2.00±0.10	3.20±0.20
W	1.00±0.10	1.00±0.10	1.50±0.20
H	0.35±0.05	0.40±0.05	0.55±0.05
L1	0.19±0.10	0.18±0.10	0.30±0.15
L2	0.28±0.10	0.26±0.10	0.30±0.20
P	0.67±0.10	0.67±0.10	0.80±0.15
Q	0.33±0.10	0.33±0.10	0.50±0.15



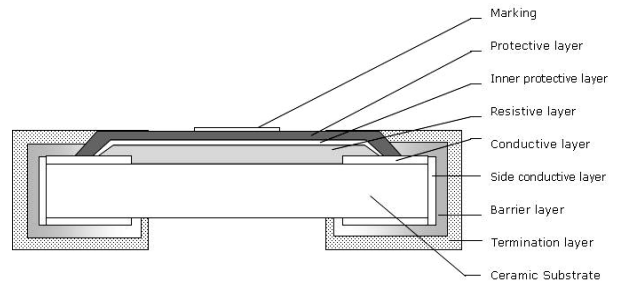
CHIP RESISTOR



Chip Resistor General Data

■ Structure

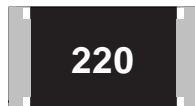
Chip Resistor constructed by a aluminum oxide ceramic substrate as body, resistive layer formed on ceramic surface. The resistor value is adjusted by laser trimming. Resistive layer is covered by protective layer. Termination is plated by nickel layer as barrier layer and matte tin as termination layer.



■ Marking



no marking for size 0402 product



For 5% (E24) product, 3 digits marking: 2D as resistance value & 1D as multiplier
Example 220: $22 \times 10^0 = 22 \Omega$



For size 0603 1%(E96) product, 3 digits marking by EIA-96 code: 2D code as resistance value & 1alphabet as multiplier.
Example 30X: $200 \times 10^{-1} = 20 \Omega$



For others 1%(E96) product except size 0603, 3 digits marking: 2D as resistance value & 1D as multiplier
Example 2201: $220 \times 10^1 = 2200 \Omega$

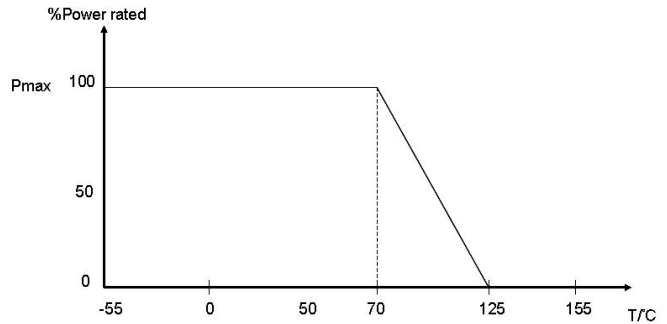
E-96 Marking Rule															
CODE VALUE	CODE VALUE	CODE VALUE	CODE VALUE	CODE VALUE	CODE VALUE	CODE VALUE	CODE VALUE								
01	100	13	133	25	178	37	237	49	316	61	422	73	562	85	750
02	102	14	137	26	182	38	243	50	324	62	432	74	576	86	768
03	105	15	140	27	187	39	249	51	332	63	442	75	590	87	787
04	107	16	143	28	191	40	255	52	340	64	453	76	604	88	806
05	110	17	147	29	196	41	261	53	348	65	464	77	619	89	825
06	113	18	150	30	200	42	267	54	357	66	475	78	634	90	845
07	115	19	154	31	205	43	274	55	365	67	487	79	649	91	866
08	118	20	158	32	210	44	280	56	374	68	499	80	665	92	887
09	121	21	162	33	215	45	287	57	383	69	511	81	681	93	909
10	124	22	165	34	221	46	294	58	392	70	523	82	698	94	931
11	127	23	169	35	226	47	301	59	402	71	536	83	715	95	953
12	130	24	174	36	223	48	309	60	412	72	549	84	732	96	976

First 2 digits represented the 3 digits value of E-96 series, the third alphabet as multiplier
 $Y=10^{-2}$, $X=10^{-1}$, $A=10^0$, $B=10^1$, $C=10^2$, $D=10^3$, $E=10^4$, $F=10^5$

Chip Resistor General Data

■ Power Rating

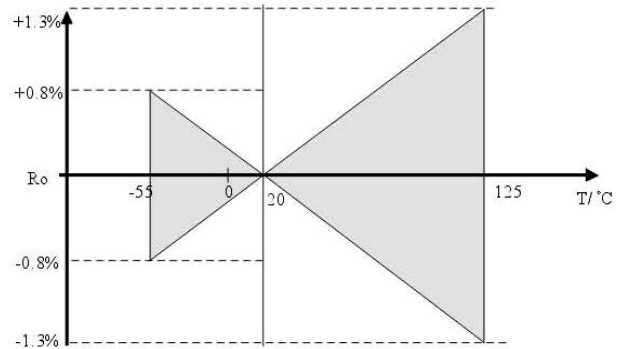
IEC 60115-8 Definition on power rating. Maximum dissipation (P_{max}) in percentage of rated power as a function of the ambient temperature (T_{amb}). For resistor which operating under ambient temperature over 70°C, power rating may derated as temperature increase.



■ Temperature Coefficient

$$TC = \frac{R_2 - R_1}{R_1 (t_2 - t_1)} \times 10^6 (\text{PPM}/^\circ\text{C})$$

Example: TC=100
(100ppm/°C)



■ Test & Requirement

Description	Test Methods	Procedure
Temperature Coefficient	JIS C5202 5.2	Keep the sample at upper temperature for 30 minutes and measure the resistance value. Resistance value change in temperature coefficient term within spec.
Short Time Overload	JIS C5202 5.5	Apply 2.5 times rated voltage on sample (if 2.5 times rated voltage exceeds the maximum overload voltage, the maximum overload voltage shall be applied as test voltage). Resistance value change within spec.
Dielectric withstand voltage	MIL-STD-202F-method 301	Applied test voltage form 0 V to maximum withstand voltage with DC voltage across electrode and the center of body for 60±5seconds. No failure on burning or breakdown.
Resistance to Soldering Heat	JIS C5202 6.4	Dip sample in a soldering bath at 260±5°C for 10±0.5 seconds Resistance value change within spec and no visual damage.
Solderability	JIS C5202 6.4	Dip sample in flux (methanol solution containing rosin approx. 25% in weight) for 2sec. and then dip into a soldering bath at 245±5°C for 2±0.5sec. Termination tinning ≥95% and no visual damage.
Bending	JIS C5202 6.1.4	Bend to 1,2 or 5mm according product type for 5s. Resistance value change within spec and no visual damage.
Load Life	JIS C5202 7.10; MIL-STD-202F METHOD 108A	At 70±2°C and rated working voltage for 1000 +24/-0 hours(42day). Resistance value change within spec and no visual damage.
Load Life Humidity	JIS C5202 7.5	At 40±2°C and 90~95% relative humidity, and subject to a voltage cycle consisting of rated working voltage of 1.5hrs on and 0.5hrs off for 1000 +24/-0 hours(42day). Resistance value change within spec and no visual damage.

CHIP RESISTOR

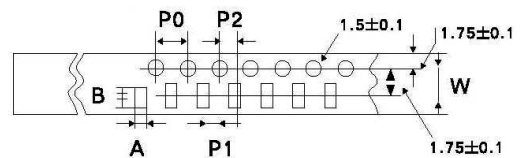
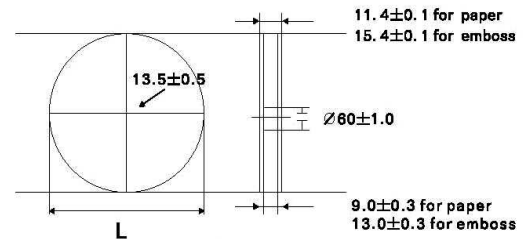


Packing Data

■ Tape & Reel Packing

Tape & reel packing according IEC 60286-3 specification

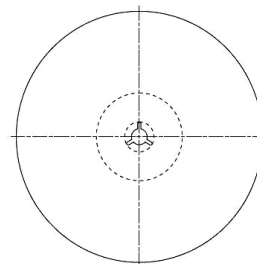
Series	A	B	W	P0	P1	P2
CR0402	0.65±0.10	1.15±0.10	8.00±0.20	4.00±0.10	2.00±0.10	2.00±0.05
CR0603	1.10±0.10	1.90±0.10	8.00±0.20	4.00±0.10	4.00±0.10	2.00±0.05
CR0805	1.65±0.20	2.40±0.20	8.00±0.20	4.00±0.10	4.00±0.10	2.00±0.05
CR1206	2.00±0.20	3.60±0.20	8.00±0.50	4.00±0.10	4.00±0.10	2.00±0.05
CR1210	2.80±0.10	3.50±0.10	12.0±0.10	4.00±0.10	4.00±0.10	2.00±0.05
CR2010	2.90±0.20	5.40±0.20	12.0±0.10	4.00±0.10	4.00±0.10	2.00±0.05
CR2512	3.60±0.20	6.90±0.20	0.50±0.05	4.00±0.10	4.00±0.10	2.00±0.05
CA022A (0402*2)	1.15±0.20	1.15±0.20	8.00±0.20	4.00±0.10	2.00±0.10	2.00±0.05
CA024A (0402*4)	1.20±0.10	2.20±0.10	8.00±0.20	4.00±0.10	2.00±0.10	2.00±0.05
CA034A (0603*4)	1.90±0.15	2.40±0.20	8.00±0.20	4.00±0.10	4.00±0.10	2.00±0.05



■ Tape & Reel Packing

Tape & reel packing according IEC 60286-3 specification

Series	Quantity per Reel	Reel Size
CR0402	10,000	7" (Φ178mm)
CR0603	5,000	
CR0805	5,000	
CR1206	5,000	
CR1210	5,000	
CR2010	4,000	
CR2512	4,000	
CA022A (0402*2)	10,000	
CA024A (0402*4)	10,000	
CA034A (0603*4)	5,000	



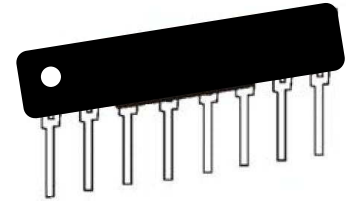
RESISTOR NETWORK



Resistor Network

■ Feature

1. DIP device
2. Epoxy coating

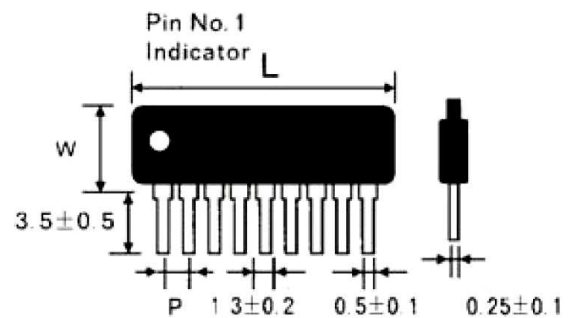


■ Electrical Characteristics

SERIES		RNA	RNB
Operating Temperature		-55°C~+125°C	-55°C~+125°C
Power Rating @T _{amb} =70°C		1/8W	1/5W
Maximum Working Voltage		100V	100V
Maximum Overload Voltage		150V	150V
Resistance range	2%	10Ω-500KΩ	10Ω-500KΩ
	5%(E24)	10Ω-500KΩ	10Ω-500KΩ
Temperature Coefficient		±200ppm/°C	±200ppm/°C
Rated Continue Working Voltage= $\sqrt{\text{rated power(W)} \times \text{Resistance value}(\Omega)}$ or Maximum Working Voltage listed above, whichever is lower			
Circuit			

■ Dimension (in mm)

SERIES	RNA	RNB
L max	Pin No.x2.54+0.25	Pin No.x2.54+0.25
W max	5.08	5.08
P	2.54±0.20	2.54±0.20
Pin No	4-12	4-12
Element No	3-11	2-6



■ Marking

●	LIZ	A	223	G
Pin number 1 indicator	LIZ logo	Circuit Configuration A B	Resistance value First 2D as resistance value & 1D as multiplier	Resistance tolerance G=±2% J=±5%

CHIP DIODE



Chip Switching Diode

■ Feature

1. Surface mounted device (SMD), suitable for auto-placement surface mounting application
2. Matte tin plating termination layer for reflow & wave soldering
3. Aluminum oxide ceramic substrate as body, high thermal and mechanical resist

■ Marking

Marking as cathode terminal

■ Application

1. Fast switching
2. For general purpose on electronics circuit board

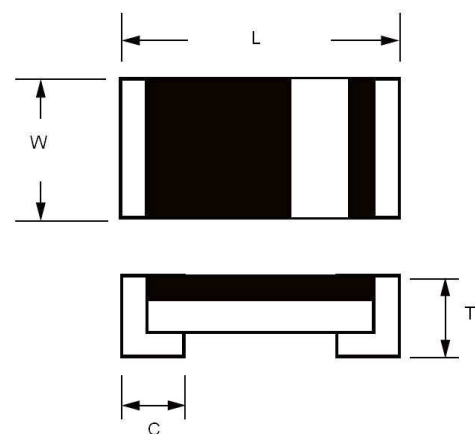


■ Electrical Characteristics, $T_{amb}=25^{\circ}C$

SERIES		CD4148WP	CD4148WSP	CD4148WTP
Size Code in Inch(mm)		1206(3216)	0805(2012)	0603(1608)
Operating Temperature		-55°C~+125°C		
Power Dissipation	P_{tot}	400mW		
Peak Reverse Voltage	V_{RRM}	75V		
Non-repetitive Peak Reverse Voltage	V_{RSM}	100V		
Peak Forward Current	I_{FM}	300mA		
Non-repetitive Surge Forward Current, at $t < 1s$	I_{FSM}	500mA _{MAX}		
Average Rectified Current, at $f > = 50Hz$	$I_{F(AV)}$	150mA _{MAX}		
Forward Voltage, at 10mA	V_F	1.0V _{MAX}		
Reverse Current, at 20V at 75V	I_R	25nA _{MAX}		
		5 μ A _{MAX}		
Capacitance, at $V_F=V_R=0V$	C_{tot}	4pF _{MAX}		
Reverse Recovery Time, at $I_F=10mA-I_R=1mA$	T_{rr}	4ns _{MAX}		

■ Dimension (in mm)

SERIES	CD4148WP	CD4148WSP	CD4148WTP
L	3.2±0.20	2.0±0.20	1.55±0.10
W	1.5±0.20	1.25±0.20	0.80±0.10
T	0.85±0.10	0.85±0.10	0.65±0.10
c	0.55±0.20	0.45±0.20	0.35±0.10



CHIP DIODE



Chip Zener Diode

■ Feature

1. Surface mounted device (SMD), suitable for auto-placement surface mounting application
2. Matte tin plating termination layer for reflow & wave soldering
3. Aluminum oxide ceramic substrate as body, high thermal and mechanical resist



■ Marking

Marking as zener voltage code & cathode terminal

■ Application

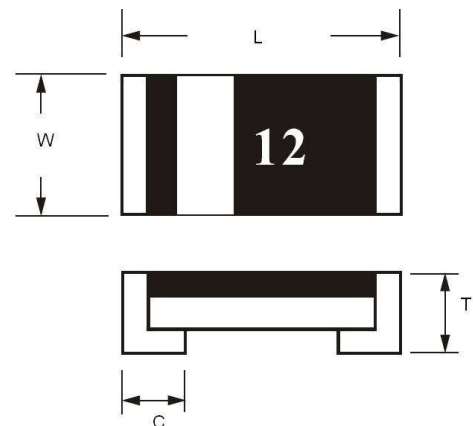
1. For general purpose on electronics circuit board

■ Electrical Characteristics, $T_{amb}=25^{\circ}C$

SERIES		CDZ55B	CDZ55C	CDZ55B-S	CDZ55C-S
Size Code in Inch(mm)		1206(3216)	1206(3216)	0805(2012)	0805(2012)
Operating Temperature		-55°C~+125°C			
Power Dissipation	P_{tot}	500mW			
Forward Voltage, at 200mA	V_F	1.5V _{MAX}			
Zener Voltage Tolerance		2%	5%	2%	5%
Zener Voltage Range	V_Z	5.1~36V * <5.1V, >36V upon request			
Max Zener Impedance	Z_{ZT}, Z_{ZK}	Refer page 13 & 14 electrical data			
Max Reverse Leakage Current	I_R				

■ Dimension (in mm)

SERIES	CDZ55	CDZ55-S
L	3.2±0.20	2.0±0.20
W	1.5±0.20	1.25±0.20
T	0.85±0.10	0.85±0.10
c	0.55±0.20	0.45±0.20



CHIP DIODE



Chip Zener Diode

■ **Electrical data**
2% Zener voltage tolerance

Part Number		Marking Code	Nominal Zener Voltage		Max Zener Impedance				Max Reverse Leakage Current	
			$V_Z @ I_{ZT}$		$Z_{ZT} @ I_{ZT}$		$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$	
Min V	Max V		Ω	mA	Ω	mA	μA	V		
CDZ55B	CDZ55B-S									
CDZ55B5V1	CDZ55B5V1S	5V1	5.00	5.20	50	5	550	1	0.1	1
CDZ55B5V6	CDZ55B5V6S	5V6	5.49	5.71	30	5	450	1	0.1	1
CDZ55B6V2	CDZ55B6V2S	6V2	6.08	6.32	10	5	200	1	0.1	2
CDZ55B6V8	CDZ55B6V8S	6V8	6.66	6.94	8	5	150	1	0.1	3
CDZ55B7V5	CDZ55B7V5S	7V5	7.35	7.65	7	5	50	1	0.1	5
CDZ55B8V2	CDZ55B8V2S	8V2	8.04	8.36	7	5	50	1	0.1	6.2
CDZ55B9V1	CDZ55B9V1S	9V1	8.92	9.28	10	5	50	1	0.1	6.8
CDZ55B10	CDZ55B10S	10	9.80	10.20	15	5	70	1	0.1	7.5
CDZ55B11	CDZ55B11S	11	10.78	11.22	20	5	70	1	0.1	8.2
CDZ55B12	CDZ55B12S	12	11.76	12.24	20	5	90	1	0.1	9.1
CDZ55B13	CDZ55B13S	13	12.74	13.26	26	5	110	1	0.1	10
CDZ55B15	CDZ55B15S	15	14.70	15.30	30	5	110	1	0.1	11
CDZ55B16	CDZ55B16S	16	15.68	16.32	40	5	170	1	0.1	12
CDZ55B18	CDZ55B18S	18	17.64	18.36	50	5	170	1	0.1	13
CDZ55B20	CDZ55B20S	20	19.60	20.40	55	5	220	1	0.1	15
CDZ55B22	CDZ55B22S	22	21.56	22.44	55	5	220	1	0.1	16
CDZ55B24	CDZ55B24S	24	23.52	24.48	80	5	220	1	0.1	18
CDZ55B27	CDZ55B27S	27	26.46	27.54	80	5	220	1	0.1	20
CDZ55B30	CDZ55B30S	30	29.40	30.60	80	5	220	1	0.1	22
CDZ55B33	CDZ55B33S	33	32.34	33.66	80	5	220	1	0.1	24
CDZ55B36	CDZ55B36S	36	35.28	36.72	80	5	220	1	0.1	27

CHIP DIODE



Chip Zener Diode

■ **Electrical data**
5% Zener voltage tolerance

Part Number		Marking Code	Nominal Zener Voltage		Max Zener Impedance				Max Reverse Leakage Current	
			$V_Z @ I_{ZT}$		$Z_{ZT} @ I_{ZT}$		$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$	
Min V	Max V		Ω	mA	Ω	mA	μA	V		
CDZ55C	CDZ55C-S									
CDZ55C5V1	CDZ55C5V1S	5V1	4.85	5.36	50	5	550	1	0.1	1
CDZ55C5V6	CDZ55C5V6S	5V6	5.32	5.88	30	5	450	1	0.1	1
CDZ55C6V2	CDZ55C6V2S	6V2	5.89	6.51	10	5	200	1	0.1	2
CDZ55C6V8	CDZ55C6V8S	6V8	6.46	7.14	8	5	150	1	0.1	3
CDZ55C7V5	CDZ55C7V5S	7V5	7.13	7.88	7	5	50	1	0.1	5
CDZ55C8V2	CDZ55C8V2S	8V2	7.79	8.61	7	5	50	1	0.1	6.2
CDZ55C9V1	CDZ55C9V1S	9V1	8.65	9.56	10	5	50	1	0.1	6.8
CDZ55C10	CDZ55C10S	10	9.50	10.50	15	5	70	1	0.1	7.5
CDZ55C11	CDZ55C11S	11	10.45	11.55	20	5	70	1	0.1	8.2
CDZ55C12	CDZ55C12S	12	11.40	12.60	20	5	90	1	0.1	9.1
CDZ55C13	CDZ55C13S	13	12.35	13.65	26	5	110	1	0.1	10
CDZ55C15	CDZ55C15S	15	14.25	15.75	30	5	110	1	0.1	11
CDZ55C16	CDZ55C16S	16	15.20	16.80	40	5	170	1	0.1	12
CDZ55C18	CDZ55C18S	18	17.10	18.90	50	5	170	1	0.1	13
CDZ55C20	CDZ55C20S	20	19.00	21.00	55	5	220	1	0.1	15
CDZ55C22	CDZ55C22S	22	20.90	23.10	55	5	220	1	0.1	16
CDZ55C24	CDZ55C24S	24	22.80	25.20	80	5	220	1	0.1	18
CDZ55C27	CDZ55C27S	27	25.65	28.35	80	5	220	1	0.1	20
CDZ55C30	CDZ55C30S	30	28.50	31.50	80	5	220	1	0.1	22
CDZ55C33	CDZ55C33S	33	31.35	34.65	80	5	220	1	0.1	24
CDZ55C36	CDZ55C36S	36	34.20	37.80	80	5	220	1	0.1	27

Chip Schottky Diode

■ Feature

1. Surface mounted device (SMD), suitable for auto-placement surface mounting application
2. Matte tin plating termination layer for reflow & wave soldering
3. Aluminum oxide ceramic substrate as body, high thermal and mechanical resist

■ Marking

Marking as product series & cathode terminal

■ Application

1. For general purpose on electronics circuit board

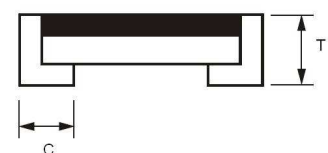
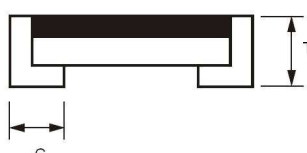
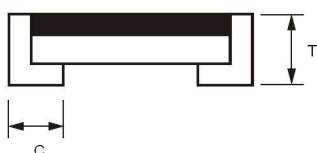
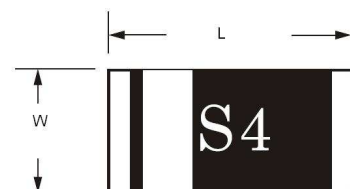
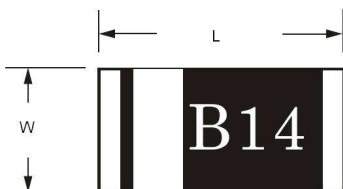


■ Electrical Characteristics, Tamb=25°C

SERIES		CDBAB140AP	CDBAB0540WP	CDBASD103WP	CDBASD103WSP
Size Code in Inch(mm)		2010(5025)	1206(3216)	1206(3216)	0805(2012)
Operating Temperature		-55°C~+125°C	-55°C~+125°C	-55°C~+125°C	-55°C~+125°C
Peak Reverse Voltage	V_{RRM}	40V	40V	40V	40V
Non-repetitive Surge Forward Current	I_{FSM}	30A _{MAX} at 8.3ms	5.5A _{MAX} at 8.3ms	2A _{MAX} at 10us	2A _{MAX} at 10us
Average Rectified Current	$I_{F(AV)}$	1A _{MAX}	0.5A _{MAX}	0.35A _{MAX}	0.35A _{MAX}
Forward Voltage	V_F	0.52V _{MAX} at 1A	0.51V _{MAX} at 0.5A	0.37V _{MAX} at 20mA	0.37V _{MAX} at 20mA
				0.6V _{MAX} at 200mA	0.6V _{MAX} at 200mA
Reverse Current	I_R	0.2mA _{MAX} at 40V	0.01mA _{MAX} at 20V	5uA _{MAX} at 30V	5uA _{MAX} at 30V
			0.02mA _{MAX} at 40V		

■ Dimension (in mm)

SERIES	CDBAB140AP	CDBAB0540WP	CDBASD103WP	CDBASD103WSP
L	4.8±0.15	3.2±0.20	3.2±0.20	2.0±0.20
W	2.4±0.15	1.5±0.20	1.5±0.20	1.25±0.20
T	0.85±0.10	0.85±0.10	0.85±0.10	0.85±0.10
c	0.55±0.20	0.55±0.20	0.55±0.20	0.45±0.20



CHIP DIODE



Chip Switching Diode Array

Feature

1. Dual diode array, surface mounted device (SMD), suitable for auto-placement surface mounting application
2. Matte tin plating termination layer for reflow & wave soldering
3. Aluminum oxide ceramic substrate as body, high thermal and mechanical resist

Marking

Marking as product series

Application

1. For general purpose on electronics circuit board

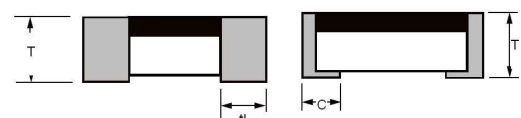
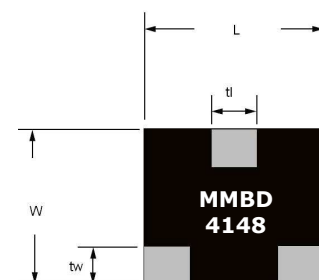


Electrical Characteristics, Tamb=25°C

SERIES		CDMMBD4148	CDBAV99	CDBAV70	CDBAW56
Circuit		Single	Series	Common Cathode	Common Anode
Operating Temperature		-55°C~+125°C	-55°C~+125°C	-55°C~+125°C	-55°C~+125°C
Power Dissipation	P_{tot}	350mW	300mW	300mW	300mW
Peak Reverse Voltage	V_{RRM}	75V	70V	70V	70V
Non-repetitive Peak Reverse Voltage	V_{RSM}	100V	100V	100V	100V
Peak Forward Current	I_{FM}	200mA	200mA	200mA	200mA
Non-repetitive Surge Forward Current, at $t < 1s$	I_{FSM}	500mA MAX	500mA	500mA MAX	500mA MAX
Average Rectified Current, at $f > 50Hz$	$I_{F(AV)}$	150mA MAX	150mA MAX	150mA MAX	150mA MAX
Forward Voltage, at 10mA	V_F	1.0V MAX	0.855V MAX	0.855V MAX	0.855V MAX
Reverse Current, at 70V	I_R	2.5uA MAX	2.5uA MAX	2.5uA MAX	2.5uA MAX
Capacitance, at $V_F = V_R = 0V$	C_{tot}	4pF MAX	4pF MAX	4pF MAX	4pF MAX
Reverse Recovery Time, at $I_F = 10mA - I_R = 1mA$	T_{rr}	4ns MAX	6ns MAX	6ns MAX	6ns MAX
Circuit Diagram					

Dimension (in mm)

SERIES	CDMMBD4148	CDBAV99	CDBAV70	CDBAW56
L	3.0±0.10	3.0±0.10	3.0±0.10	3.0±0.10
W	2.5±0.10	2.5±0.10	2.5±0.10	2.5±0.10
T	0.85±0.10	0.85±0.10	0.85±0.10	0.85±0.10
c	0.55±0.20	0.55±0.20	0.55±0.20	0.55±0.20
tl	0.75±0.05	0.75±0.05	0.75±0.05	0.75±0.05
tw	0.30±0.10	0.30±0.10	0.30±0.10	0.30±0.10



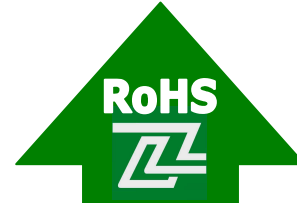
CHIP RESISTOR & CHIP DIODE



Environmental Data

■ Environmental Characteristic

1. Compliance to EU RoHS Directive 2002/95/EC
2. Compliance to CHINA RoHS SJ/T 11363-2006
3. Compliance to LeadFree Specification
4. Compliance to Halogen control
5. Homogenous material of resistor may contain lead in glass, which belong to EU RoHS exemption



	Hazardous Substance or Element/ppm					
	Pb	Cd	Hg	Cr ⁶⁺	PBB	PBDE
	<1000	<100	<1000	<1000	<1000	<1000

	Halogen Substance/ ppm				
	F	Cl	Br	I	Total
	<900	<900	<900	<900	<1500

CHIP RESISTOR & CHIP DIODE



Storage, Handling & Soldering Data

■ Storage & Handling Condition

1. Storage condition: Temperature 5-40°C; Humidity 30-75%RH
(Refer to IEC 61760-2, Clause 5 Storage Condition/ IEC 60721-3-1, class 1K2)
2. Keep in chemical & dust free environment, avoid acid gas like sulfide & chloride gas
3. Avoid expose direct to sunlight

■ Recommended Soldering Condition

Recommended Profile Condition	Sn-Pb Soldering	Leadfree Soldering	Wave Soldering
Ramp-up rate (from pre-heat stage)	<3°C/s	<3°C/s	$\Delta T < 150^{\circ}\text{C}$
Pre-heat Temperature & Time	100-150 °C 60-120s	150-200 °C 60-180s	100-150 °C 60-120s
Soldering Temperature & Time	183 °C 60-150s	217 °C 60-150s	260±5°C 5±2s
Peak Temperature	230±5°C	245±5°C	260±5°C
Time within 5°C of peak temperature	10-30s	20-40s	-
Ramp-down rate	<6°C/s	<6°C/s	<6°C/s
Time 25°C to peak temperature	<6min	<8min	-

Manual Soldering: Approx. 350°C for 3s, avoid solder iron tip direct touch the components body

PART NUMBER



Part Number

Chip Resistor & Chip Resistor Array

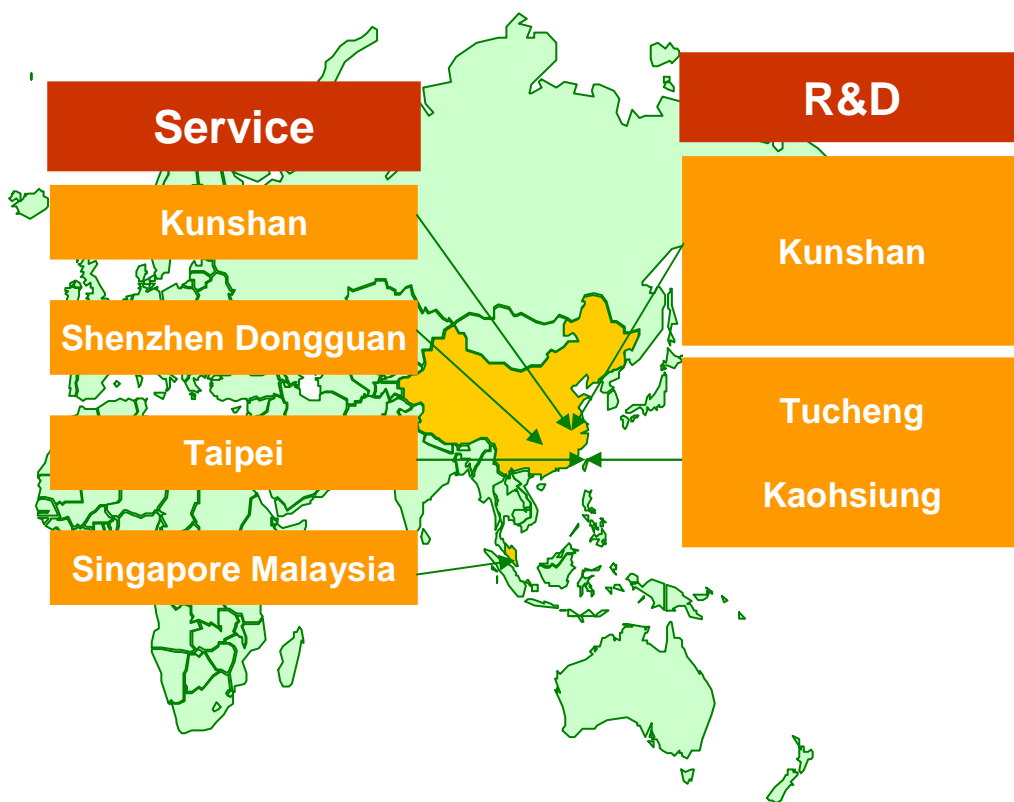
CR	0805	J	8	0472	G
Product Series CR: Chip Resistor CA: Chip Resistor Array	Size Code 0402 0603 0805 1206 1210 2010 2512 022A: 0402x2 024A: 0402x4 034A: 0603x4	Tolerance B: $\pm 0.1\%$ C: $\pm 0.25\%$ D: $\pm 0.5\%$ F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$ K: $\pm 10\%$ O: 0 Ω Jumper	Power Rating 1: 1W 2: 1/2W 3: 1/3W 4: 1/4W 8: 1/8W A: 1/10W F: 1/16W H: 1/32W -: Ignore	Resistance Value 49R9=49.9 0472=4K7 0103=10K 0564=560K	Special Code G: Reel V: Bulk D: Special Req

Resistor Network

RN	L	8P	A	J	-	0472	G
Product Series RN: Resistor Network	Profile Type L: Low H: High	Pin Code 3P: 3pin 4P: 4pin 5P: 5pin 6P: 6pin 7P: 7pin 8P: 8pin 9P: 9pin 10P: Apin 11P: Bpin 12P: Cpin 13P: Dpin 14P: Epin	Circuit A: A type B: B type	Tolerance B: $\pm 0.1\%$ C: $\pm 0.25\%$ D: $\pm 0.5\%$ F: $\pm 1\%$ G: $\pm 2\%$ J: $\pm 5\%$ K: $\pm 10\%$ O: 0 Ω Jumper	Power Rating 1: 1W 2: 1/2W 3: 1/3W 4: 1/4W 5: 1/5W 8: 1/8W A: 1/10W F: 1/16W H: 1/32W -: Ignore	Resistance Value 49R9=49.9 0472=4K7 0103=10K 0564=560K	Special Code G: Reel V: Bulk D: Special Req

Chip Diode

CD	4148	WS	P
Product Series CD: Chip Diode	Product Type 4148: Switching Z55B: Zener 2% Z55C: Zener 5% BAB140: Schottky 1A/40V BAB0540: Schottky 0.5A/40V BASD103: Schottky 0.35A/40V MMBD4148: Switching Array Single BAV99: Switching Array Series BAV70: Switching Array Common Cathode BAW56: Switching Array Common Anode	Size Switching, Schottky A: 2010 W: 1206 WS: 0805 WT: 0603 Zener : 1206 S: 0805 Switching Array : SOT-23 W: SOT-323	Special Code P: Lead free Termination





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