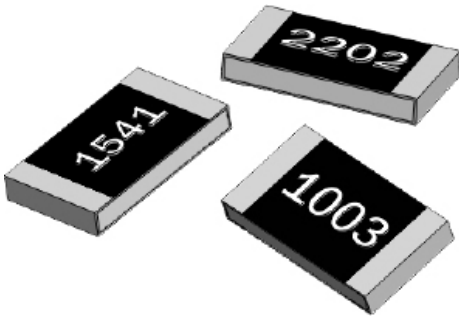


High Power Thick Film Chip Resistor 2512



RoHS
Compliant

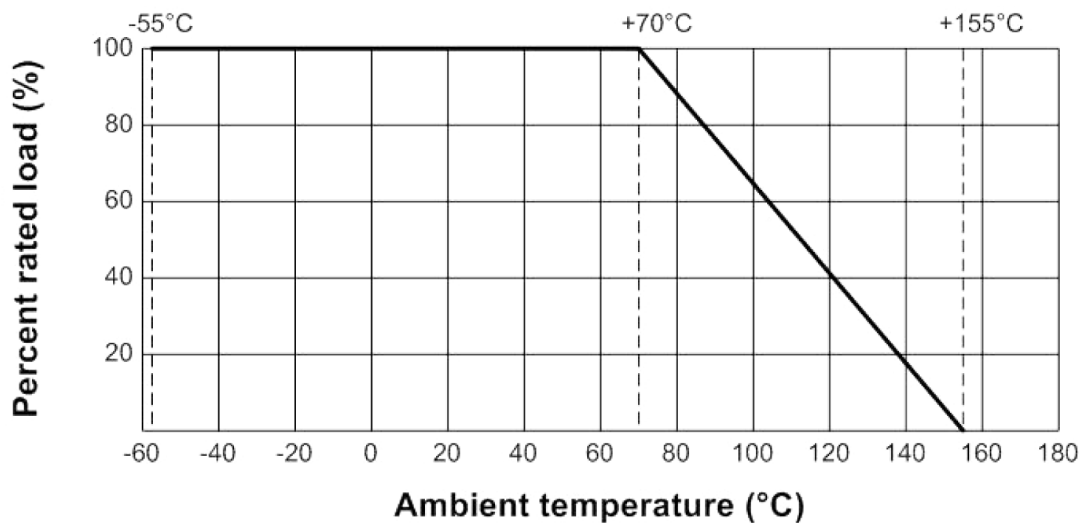


Specifications:

Type	: MCHP12
Power Rating at 70°C	: 2W
Working Voltage	: 250V Max.
Overload Voltage	: 500V Max.
Dielectric Withstanding Voltage	: 500V
Temperature Range	: -55°C to +155°C
Ambient Temperature	: 70°C
Nominal Resistance	: 10Ω

Power Rating:

Resistors shall have a power rating based on continuous load operation at an ambient temperature of C 70°C. For temperature in excess of 70°C, The load shall be derate as shown in figure.



Nominal Resistance:

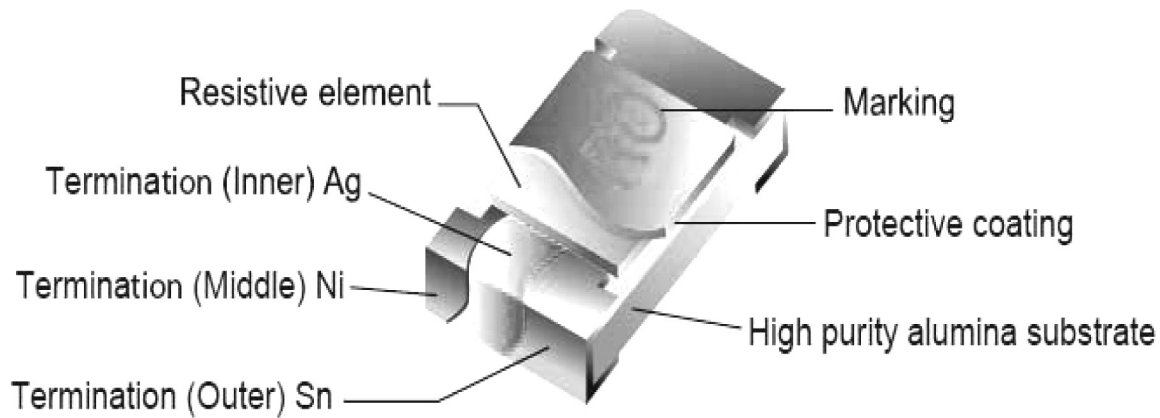
Effective figures of nominal resistance shall be in accordance with E-96 series E-96 series for 1%.



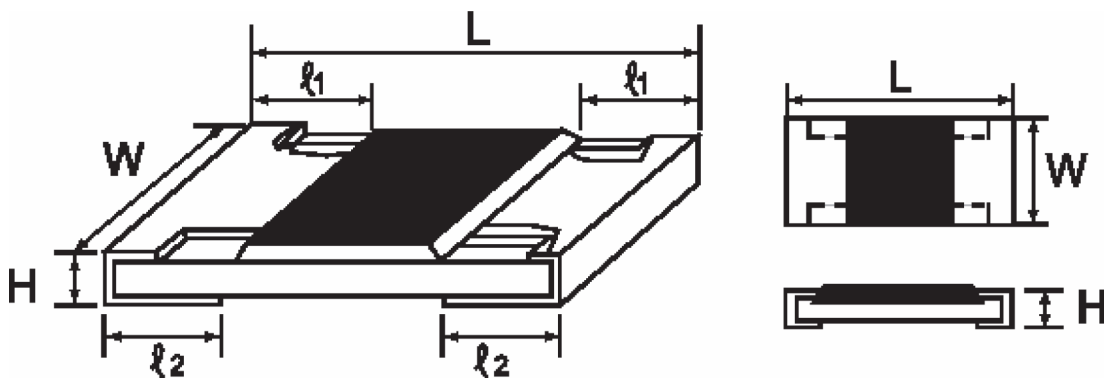
High Power Thick Film Chip Resistor 2512



Construction:



Dimensions:



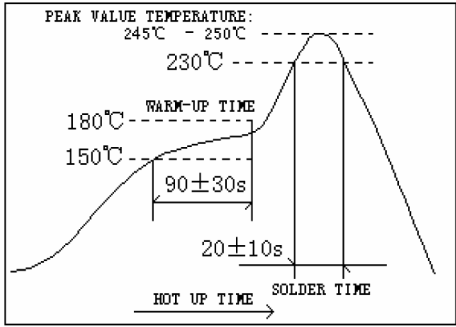
Type	L ± 0.1	W ± 0.15	H ± 0.1	$l_1 \pm 0.25$	$l_2 \pm 0.2$
MCHP12 (2512)	6.35	3.2	0.55	0.6	1.8

Dimensions : Millimetres

High Power Thick Film Chip Resistor 2512



Performance specification:

Characteristics	Limits	Test Methods (JIS C 5201-1)										
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down	Clamped in the trough of a 90°C metallic v-block and shall be tested at ac potential respectively specified in the type for 60-70 seconds										
Temperature Coefficient	1Ω~10Ω $\leq \pm 200\text{PPM}/^\circ\text{C}$ 11Ω~10MΩ $\leq \pm 100\text{PPM}/^\circ\text{C}$	Natural resistance change per temp. degree centi- grade. R2-R1 _____ $\times 10^6$ (PPM/°C) R1(t2-t1) R1: Resistance value at room temperature (T1) R2: Resistance value at room temp. plus 100 °C(T2) Test pattern: room temp. (T1), room temp. +100°C(T2)										
Short time overload	Resistance change rate is $\pm 1\%$ (1% + 0.1Ω) Max.	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds										
Solderability	95% coverage Min.	Wave Solder: Test temperature of solder: 245°C $\pm 3^\circ\text{C}$ dipping time in solder: 2-3 seconds. Reflow:  The graph shows a temperature profile for reflow soldering. The y-axis is temperature in degrees Celsius (50 to 250) and the x-axis is time. Key points include: 150°C (90 ± 30s warm-up time), 180°C, 200°C, 230°C (20 ± 10s hot up time), and a peak value temperature of 245°C - 250°C (solder time). The temperature then cools down.										
Soldering heat	Resistance change rate is: $\pm(1\%+0.05\Omega)$ Max.	Dip the resistor into a solder bath having a temperature of 260°C $\pm 3^\circ\text{C}$ and hold it for 10 ± 1 seconds.										
Temperature cycling	Resistance change rate is $\pm 1\%$ (0.5% + 0.05Ω) Max.	Resistance change after continuous 5 cycles for duty cycle specified below: <table border="1" data-bbox="863 1644 1267 1839"> <thead> <tr> <th>Temperature</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>-55°C $\pm 3^\circ\text{C}$</td> <td>30 mins</td> </tr> <tr> <td>Room temp.</td> <td>10 to 15 mins</td> </tr> <tr> <td>+155°C $\pm 2^\circ\text{C}$</td> <td>30 mins</td> </tr> <tr> <td>Room temp.</td> <td>10 to 15 mins</td> </tr> </tbody> </table>	Temperature	Time	-55°C $\pm 3^\circ\text{C}$	30 mins	Room temp.	10 to 15 mins	+155°C $\pm 2^\circ\text{C}$	30 mins	Room temp.	10 to 15 mins
Temperature	Time											
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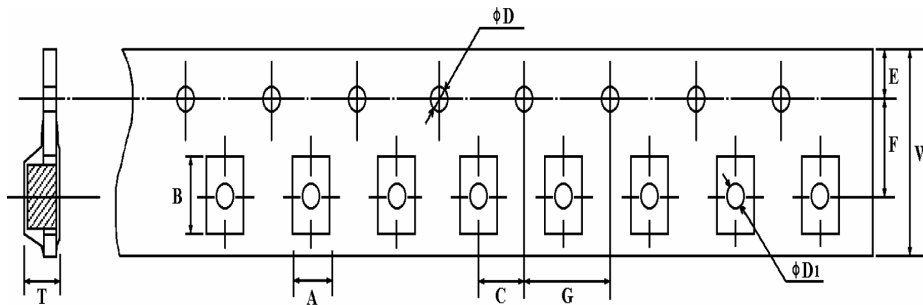


High Power Thick Film Chip Resistor 2512

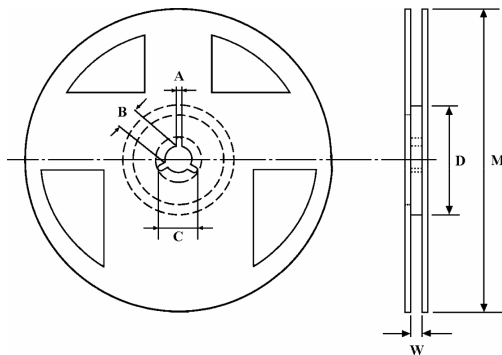


Characteristics	Limits	Test Methods (JIS C 5201-1)
Humidity	Resistance change rate is $\pm 1\%$ ($0.5\% + 0.1\Omega$) Max.	Temporary resistance change after 240 hours exposure in a humidity test chamber controlled at $40\pm 2^\circ\text{C}$ and 90-95% relative humidity
Load life in humidity	Resistance change rate is $\pm 1\%$ ($1\% + 0.1\Omega$) Max.	Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity chamber controlled at $40^\circ\text{C} \pm 2^\circ\text{C}$ and 90 to 95% relative humidity
Load Life	Resistance change rate is $\pm 1\%$ ($1\% + 0.1\Omega$) Max.	Permanent resistance change after 1,000 hours operating at RCWV, with duty cycle of (1.5 hours "on", 0.5 hour "off") at $70^\circ\text{C} \pm 2^\circ\text{C}$ ambient
Terminal bending	Resistance change rate is $\pm(1\% + 0.05\Omega)$ Max.	Twist of Test Board : $Y/X = 3/90\text{mm}$ for 60 seconds

Packing specification:



Type	A ± 0.2	B ± 0.2	C ± 0.05	$\text{ØD} + 0.1 - 0$	E ± 0.10	F ± 0.05	G ± 0.1	W ± 0.20	$\text{ØD1} + 0.1 - 0$	T ± 0.1
MCHP12 (2512)	3.5	6.7	2	1.5	1.75	5.5	4	12	1.5	1



Dimensions : Millimetres

Type	Quantity Per Reel	A ± 0.5	B ± 0.5	C ± 0.5	D ± 1	M ± 2	W ± 1
MCHP12 (2512)	4,000 Pcs. Reel	2	13.5	21	60	178	13.8

Remark: ØM 10,000pcs. / Reel = $255 \pm 2\text{mm}$
20,000pcs. / Reel = $330 \pm 2\text{mm}$



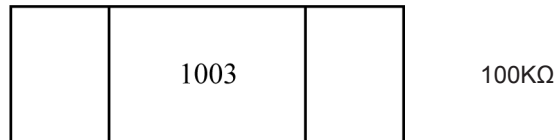
High Power Thick Film Chip Resistor 2512



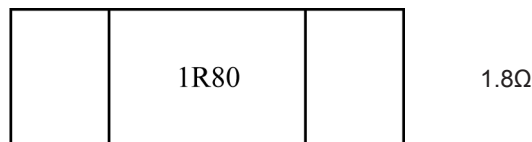
Marking:

A. Marking for E-96 series in 2512 size : 4 Digits

*The first 3 digits are significant figures of resistance and the 4th digit denoted number of zeros.

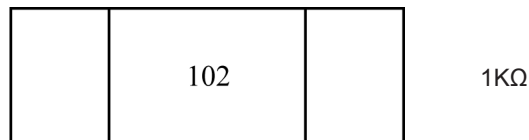


*For ohmic values below 100 Ω , letter "R" is for decimal point.

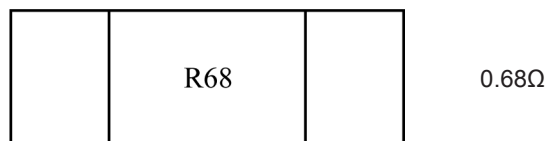


B. Marking for E-24 series in 2512 size : 3 Digits

*The first 2 digits are significant figures of resistance and the 3rd digit denoted number of zeros.



*For ohmic values below 10 Ω , letter "R" is for decimal point.



High Power Thick Film Chip Resistor 2512



Part Number Table

Description	Part Number
Resistor, Thick Film, 10R, 2W, 1%	MCHP122WF100JT4E
Resistor, Thick Film, 11R, 2W, 1%	MCHP122WF110JT4E
Resistor, Thick Film, 12R, 2W, 1%	MCHP122WF120JT4E
Resistor, Thick Film, 13R, 2W, 1%	MCHP122WF130JT4E
Resistor, Thick Film, 15R, 2W, 1%	MCHP122WF150JT4E
Resistor, Thick Film, 16R, 2W, 1%	MCHP122WF160JT4E
Resistor, Thick Film, 18R, 2W, 1%	MCHP122WF180JT4E
Resistor, Thick Film, 20R, 2W, 1%	MCHP122WF200JT4E
Resistor, Thick Film, 22R, 2W, 1%	MCHP122WF220JT4E
Resistor, Thick Film, 24R, 2W, 1%	MCHP122WF240JT4E
Resistor, Thick Film, 27R, 2W, 1%	MCHP122WF270JT4E
Resistor, Thick Film, 30R, 2W, 1%	MCHP122WF300JT4E
Resistor, Thick Film, 33R, 2W, 1%	MCHP122WF330JT4E
Resistor, Thick Film, 36R, 2W, 1%	MCHP122WF360JT4E
Resistor, Thick Film, 39R, 2W, 1%	MCHP122WF390JT4E
Resistor, Thick Film, 43R, 2W, 1%	MCHP122WF430JT4E
Resistor, Thick Film, 47R, 2W, 1%	MCHP122WF470JT4E
Resistor, Thick Film, 51R, 2W, 1%	MCHP122WF510JT4E
Resistor, Thick Film, 56R, 2W, 1%	MCHP122WF560JT4E
Resistor, Thick Film, 62R, 2W, 1%	MCHP122WF620JT4E
Resistor, Thick Film, 68R, 2W, 1%	MCHP122WF680JT4E
Resistor, Thick Film, 75R, 2W, 1%	MCHP122WF750JT4E
Resistor, Thick Film, 82R, 2W, 1%	MCHP122WF820JT4E
Resistor, Thick Film, 91R, 2W, 1%	MCHP122WF910JT4E
Resistor, Thick Film, 100R, 2W, 1%	MCHP122WF1000T4E
Resistor, Thick Film, 110R, 2W, 1%	MCHP122WF1100T4E
Resistor, Thick Film, 120R, 2W, 1%	MCHP122WF1200T4E
Resistor, Thick Film, 130R, 2W, 1%	MCHP122WF1300T4E
Resistor, Thick Film, 150R, 2W, 1%	MCHP122WF1500T4E
Resistor, Thick Film, 160R, 2W, 1%	MCHP122WF1600T4E
Resistor, Thick Film, 180R, 2W, 1%	MCHP122WF1800T4E
Resistor, Thick Film, 200R, 2W, 1%	MCHP122WF2000T4E
Resistor, Thick Film, 220R, 2W, 1%	MCHP122WF2200T4E
Resistor, Thick Film, 240R, 2W, 1%	MCHP122WF2400T4E
Resistor, Thick Film, 270R, 2W, 1%	MCHP122WF2700T4E
Resistor, Thick Film, 300R, 2W, 1%	MCHP122WF3000T4E
Resistor, Thick Film, 330R, 2W, 1%	MCHP122WF3300T4E
Resistor, Thick Film, 360R, 2W, 1%	MCHP122WF3600T4E
Resistor, Thick Film, 390R, 2W, 1%	MCHP122WF3900T4E

Description	Part Number
Resistor, Thick Film, 430R, 2W, 1%	MCHP122WF4300T4E
Resistor, Thick Film, 470R, 2W, 1%	MCHP122WF4700T4E
Resistor, Thick Film, 510R, 2W, 1%	MCHP122WF5100T4E
Resistor, Thick Film, 620R, 2W, 1%	MCHP122WF6200T4E
Resistor, Thick Film, 680R, 2W, 1%	MCHP122WF6800T4E
Resistor, Thick Film, 750R, 2W, 1%	MCHP122WF7500T4E
Resistor, Thick Film, 820R, 2W, 1%	MCHP122WF8200T4E
Resistor, Thick Film, 910R, 2W, 1%	MCHP122WF9100T4E
Resistor, Thick Film, 1K, 2W, 1%	MCHP122WF1001T4E
Resistor, Thick Film, 1K1, 2W, 1%	MCHP122WF1101T4E
Resistor, Thick Film, 1K2, 2W, 1%	MCHP122WF1201T4E
Resistor, Thick Film, 1K3, 2W, 1%	MCHP122WF1301T4E
Resistor, Thick Film, 1K5, 2W, 1%	MCHP122WF1501T4E
Resistor, Thick Film, 1K6, 2W, 1%	MCHP122WF1601T4E
Resistor, Thick Film, 1K8, 2W, 1%	MCHP122WF1801T4E
Resistor, Thick Film, 2K, 2W, 1%	MCHP122WF2001T4E
Resistor, Thick Film, 2K7, 2W, 1%	MCHP122WF2701T4E
Resistor, Thick Film, 3K, 2W, 1%	MCHP122WF3001T4E
Resistor, Thick Film, 3K3, 2W, 1%	MCHP122WF3301T4E
Resistor, Thick Film, 3K6, 2W, 1%	MCHP122WF3601T4E
Resistor, Thick Film, 3K9, 2W, 1%	MCHP122WF3901T4E
Resistor, Thick Film, 4K3, 2W, 1%	MCHP122WF4301T4E
Resistor, Thick Film, 4K7, 2W, 1%	MCHP122WF4701T4E
Resistor, Thick Film, 5K1, 2W, 1%	MCHP122WF5101T4E
Resistor, Thick Film, 5K6, 2W, 1%	MCHP122WF5601T4E
Resistor, Thick Film, 6K2, 2W, 1%	MCHP122WF6201T4E
Resistor, Thick Film, 6K8, 2W, 1%	MCHP122WF6801T4E
Resistor, Thick Film, 7K5, 2W, 1%	MCHP122WF7501T4E
Resistor, Thick Film, 8K2, 2W, 1%	MCHP122WF8201T4E
Resistor, Thick Film, 9K1, 2W, 1%	MCHP122WF9101T4E
Resistor, Thick Film, 10K, 2W, 1%	MCHP122WF1002T4E
Resistor, Thick Film, 11K, 2W, 1%	MCHP122WF1102T4E
Resistor, Thick Film, 12K, 2W, 1%	MCHP122WF1202T4E
Resistor, Thick Film, 13K, 2W, 1%	MCHP122WF1302T4E
Resistor, Thick Film, 15K, 2W, 1%	MCHP122WF1502T4E
Resistor, Thick Film, 16K, 2W, 1%	MCHP122WF1602T4E
Resistor, Thick Film, 18K, 2W, 1%	MCHP122WF1802T4E
Resistor, Thick Film, 20K, 2W, 1%	MCHP122WF2002T4E
Resistor, Thick Film, 22K, 2W, 1%	MCHP122WF2202T4E

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High Power Thick Film Chip Resistor 2512



Description	Part Number
Resistor, Thick Film, 24K, 2W, 1%	MCHP122WF2402T4E
Resistor, Thick Film, 27K, 2W, 1%	MCHP122WF2702T4E
Resistor, Thick Film, 33K, 2W, 1%	MCHP122WF3302T4E
Resistor, Thick Film, 39K, 2W, 1%	MCHP122WF3902T4E
Resistor, Thick Film, 43K, 2W, 1%	MCHP122WF4302T4E
Resistor, Thick Film, 47K, 2W, 1%	MCHP122WF4702T4E
Resistor, Thick Film, 51K, 2W, 1%	MCHP122WF5102T4E
Resistor, Thick Film, 56K, 2W, 1%	MCHP122WF5602T4E
Resistor, Thick Film, 62K, 2W, 1%	MCHP122WF6202T4E
Resistor, Thick Film, 68K, 2W, 1%	MCHP122WF6802T4E
Resistor, Thick Film, 75K, 2W, 1%	MCHP122WF7502T4E
Resistor, Thick Film, 82K, 2W, 1%	MCHP122WF8202T4E
Resistor, Thick Film, 91K, 2W, 1%	MCHP122WF9102T4E
Resistor, Thick Film, 100K, 2W, 1%	MCHP122WF1003T4E
Resistor, Thick Film, 110K, 2W, 1%	MCHP122WF1103T4E
Resistor, Thick Film, 120K, 2W, 1%	MCHP122WF1203T4E
Resistor, Thick Film, 130K, 2W, 1%	MCHP122WF1303T4E
Resistor, Thick Film, 150K, 2W, 1%	MCHP122WF1503T4E
Resistor, Thick Film, 160K, 2W, 1%	MCHP122WF1603T4E

Description	Part Number
Resistor, Thick Film, 180K, 2W, 1%	MCHP122WF1803T4E
Resistor, Thick Film, 200K, 2W, 1%	MCHP122WF2003T4E
Resistor, Thick Film, 220K, 2W, 1%	MCHP122WF2203T4E
Resistor, Thick Film, 240K, 2W, 1%	MCHP122WF2403T4E
Resistor, Thick Film, 300K, 2W, 1%	MCHP122WF3003T4E
Resistor, Thick Film, 330K, 2W, 1%	MCHP122WF3303T4E
Resistor, Thick Film, 360K, 2W, 1%	MCHP122WF3603T4E
Resistor, Thick Film, 390K, 2W, 1%	MCHP122WF3903T4E
Resistor, Thick Film, 430K, 2W, 1%	MCHP122WF4303T4E
Resistor, Thick Film, 470K, 2W, 1%	MCHP122WF4703T4E
Resistor, Thick Film, 510K, 2W, 1%	MCHP122WF5103T4E
Resistor, Thick Film, 560K, 2W, 1%	MCHP122WF5603T4E
Resistor, Thick Film, 620K, 2W, 1%	MCHP122WF6203T4E
Resistor, Thick Film, 680K, 2W, 1%	MCHP122WF6803T4E
Resistor, Thick Film, 750K, 2W, 1%	MCHP122WF7503T4E
Resistor, Thick Film, 820K, 2W, 1%	MCHP122WF8203T4E
Resistor, Thick Film, 910K, 2W, 1%	MCHP122WF9103T4E
Resistor, Thick Film, 1M, 2W, 1%	MCHP122WF1004T4E

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