AMC Series

Thick Film Automotive Grade Chips

The Ohmite AMC series is compliant with AEC-Q200 specifications. These AEC-Q200 qualified chips are ideal for automotive electronics and other applications requiring great reliability. The AMC chips are halogen free and RoHS compliant reducing the effects on the environment. The wide range of chip sizes offered makes choosing the AMC series even easier.

SERIES SPECIFICATIONS

Series	Power	Max. Working Voltage	Max. Overload Voltage	Dielec. Withst. Voltage	Resistance Range (by tolerance) 5.00%	1.00%	0.5%
AMC0201	1/20 W	25V	50V	50V	1-10MΩ		10-1MΩ
AMC0402	1/16 W	50V	100V	100V	1-22MΩ	1-10MΩ	10-1MΩ
AMC0603	1/10 W	75V	150V	150V		1-10MΩ	
AMC0805	1/8 W	150V	300V	300V		1-10MΩ	10-1MΩ
AMC1206	1/4 W	200V	400V	500V			
AMC1210	1/2 W	200V	500V	500V			
AMC2010	3/4 W	200V	500V	500V			
AMC2512	1 W	200V	500V	500V			

CHARACTERISTICS

Operating Temp. Range: -55°C to +155°C

Rated Voltage: The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$V = \sqrt{(PxR)}$

or max. working voltage whichever is less, where:

V = Cont. rated DC or AC (rms) working voltage (V)

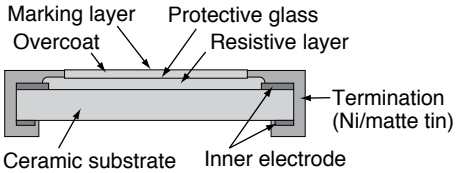
P = Rated power (W)

R = Resistance value (Ω)

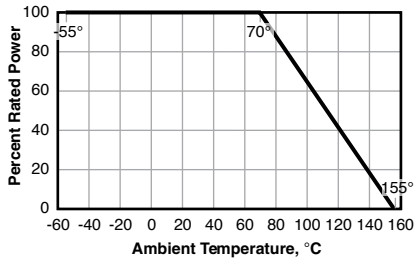
Temperature Coeff. of Resistance

Resistance range	
1Ω-10Ω	±200ppm
10Ω-10MΩ	±100ppm
10MΩ-22MΩ	±200ppm
24MΩ-100MΩ	±300ppm

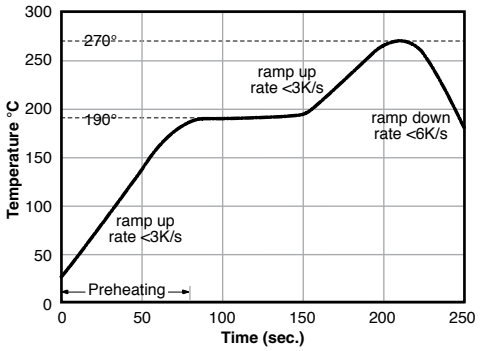
Construction



Derating



Soldering Conditions



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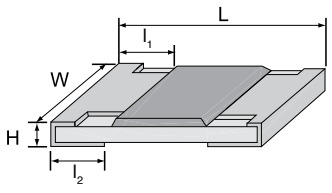
PERFORMANCE DATA

Test	Method	Procedure	Requirements
Temp. Coeff. of Res.	MIL-STD-202 Method 304	At +25/–55°C and +25/+125°C	
High Temperature Exposure	AEC-Q200 Test 3 MIL-STD-202 Method 108	1,000 hours at TA = 155°C, unpowered	±(1.0%+0.05Ω) for D/F tol ±(2.0%+0.05Ω) for J tol
Moisture Resistance	AEC-Q200 Test 6 MIL-STD-202 Method 106	Each temperature / humidity cycle is defined at 8 hours (method 106F), 3 cycles / 24 hours for 10d. with 25°C / 65°C 95% R.H, without steps 7a & 7b, unpowered. Parts mounted on test-boards, without condensation on parts	±(0.5%+0.05Ω) for D/F tol ±(2.0%+0.05Ω) for J tol
Biased Humidity	AEC-Q200 Test 7 MIL-STD-202 Method 103	1,000 hours; 85°C / 85% RH 10% of operating power Measurement at 24±4 hours after test conclusion.	±(1.0%+0.05Ω) for D/F tol ±(3.0%+0.05Ω) for J tol
Operational Life	AEC-Q200 Test 8 MIL-STD-202 Method 108	1,000 hours at 125°C, derated voltage applied for 1.5 hours on, 0.5 hour off, still-air required	±(1.0%+0.05Ω) for D/F tol ±(3.0%+0.05Ω) for J tol
Resistance to Soldering Heat	AEC-Q200 Test 15 MIL-STD-202 Method 210	Condition B, no pre-heat of samples Lead-free solder, 260±5°C, 10±1 seconds immersion time Procedure 2 for SMD: devices fluxed and cleaned with isopropanol	±(0.5%+0.05Ω) for D/F tol ±(1.0%+0.05Ω) for J tol No visible damage
Thermal Shock	AEC-Q200 Test 16 MIL-STD-202 Method 107	-55/+125°C Number of cycles is 300. Devices mounted Maximum transfer time is 20 seconds. Dwell time is 15 minutes. Air – Air	±(0.5%+0.05Ω) for D/F tol ±(1.0%+0.05Ω) for J tol
ESD	AEC-Q200 Test 17 AEC-Q200-002	Human Body Model, 1 pos. + 1 neg. discharges. 0201: 500V; 0402/0603: 1KV; 0805 and above: 2KV	±(3.0%+0.05 Ω)
Solderability Wetting	AEC-Q200 Test 18 J-STD-002	Electrical Test not required Magnification 50X. SMD conditions: (a) Method B, aging 4 hours at 155°C dry heat, dipping at 235±3°C for 5±0.5 seconds. (b) Method B, steam aging 8 hours, dipping at 215±3°C for 5±0.5 seconds. (c) Method D, steam aging 8 hours, dipping at 260±3°C for 7±0.5 seconds.	Well tinned (≥95% covered) No visible damage
Board Flex	AEC-Q200 Test 21 AEC-Q200-005	Chips mounted on a 90mm glass epoxy resin PCB (FR4) Bending for 0201/0402: 5 mm 0603/0805: 3 mm 1206 and above: 2 mm Holding time: minimum 60 seconds	±(1.0%+0.05Ω)
Short Time Overload	IEC60115-1 4.13	2.5 times of rated voltage or maximum overload voltage whichever is less for 5 sec at room temperature	±(1.0%+0.05Ω) for D/F tol ±(2.0%+0.05Ω) for J tol
FOS	ASTM-B-809-95	Sulfur (saturated vapor) 500 hours, 60±2°C, unpowered	±(1.0%+0.05Ω)

DIMENSIONS

(mm)



Size	L	W	H	I1	I2
0201	0.60 ±0.03	0.30 ±0.03	0.23 ±0.03	0.12 ±0.05	0.15 ±0.05
0402	1.00 ±0.05	0.50 ±0.05	0.35 ±0.05	0.20 ±0.10	0.25 ±0.10
0603	1.60 ±0.10	0.80 ±0.10	0.45 ±0.10	0.25 ±0.15	0.25 ±0.15
0805	2.00 ±0.10	1.25 ±0.10	0.50 ±0.10	0.35 ±0.20	0.35 ±0.20
1206	3.10 ±0.10	1.60 ±0.10	0.55 ±0.10	0.45 ±0.20	0.40 ±0.20
1210	3.10 ±0.10	2.60 ±0.15	0.50 ±0.10	0.45 ±0.15	0.50 ±0.20
2010	5.00 ±0.10	2.50 ±0.15	0.55 ±0.10	0.45 ±0.15	0.50 ±0.20
2512	6.35 ±0.10	3.10 ±0.15	0.55 ±0.10	0.60 ±0.20	0.50 ±0.20

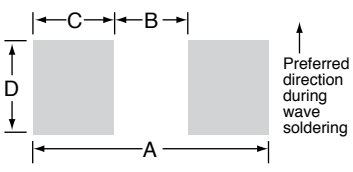
Reflow soldering footprint

Size	A	B	C	D
0201	1.0	0.3	0.35	0.4
0402	1.5	0.5	0.5	0.6
0603	2.6	0.8	0.9	0.8
0805	3.0	1.2	0.9	1.2
1206	4.2	2 .2	1.0	1.5
1210	4.2	2.2	1.0	2.4
2010	6.1	3.3	1.4	2.4
2512	8.0	4.4	1.8	3.0

Wave soldering footprint

Size	A	B	C	D
0603	2.70	0.90	0.90	0.80
0805	3.30	1.30	1.00	1.30
1206	4.70	2.50	1.10	1.70
1210	4.70	2.50	1.10	2.50
2010	6.40	4.20	1.10	2.50
2512	8.20	5.50	1.35	3.20

Note: Wave soldering not recommended for parts smaller than 0603.



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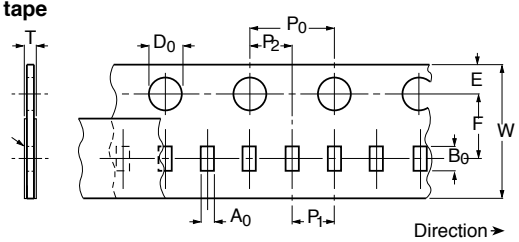
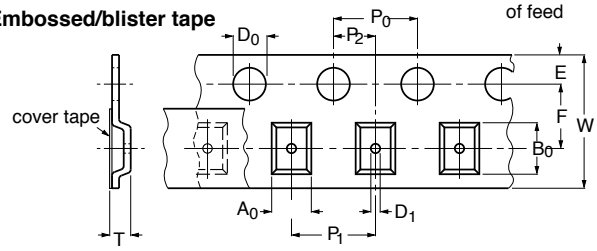
TAPE AND REEL

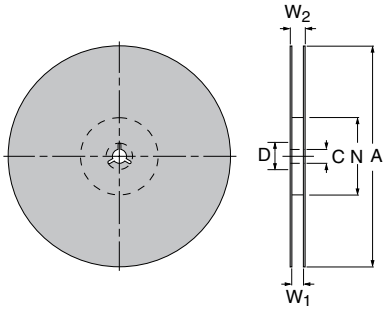
(mm)

Paper/PE tape



Embossed/blister tape





Paper/PE tape

Size	A0	B0	W	E	F	P0	P1	P2	ØD0	T	Qty. per reel (178mm)
0201	0.35 ±0.10	0.65 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.35 ±0.10*	10000
0402	0.65 ±0.10	1.15 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	2.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.53 ±0.10	10000
0603	1.10 ±0.10	1.90 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.70 ±0.10	5000
0805	1.65 ±0.10	2.40 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	5000
1206	1.90 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	5000
1210	2.80 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10	5000

*For size 0201, the typical value of thickness (excluding cover tape) is 0.42 mm for paper tape and 0.33 mm for PE tape.

Embossed/blister tape

Size	A0	B0	W	E	F	P0	P1	P2	ØD0	ØD1	T	Qty/reel
2010	2.80 ±0.20	5.40 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10	4000
2512	3.50 ±0.20	6.70 ±0.20	12 ±0.20	1.75 ±0.10	5.5 ±0.05	4.0 ±0.10	4.0 ±0.10	2.0 ±0.05	1.5 +0.1/-0	1.50 +0.25/-0	1.0 ±0.10	4000
1210	2.80 ±0.10	3.50 ±0.10	8.0 ±0.20	1.75 ±0.10	3.5 ±0.05	4.0 ±0.10	4.0 ±0.05	2.0 ±0.05	1.5 +0.1/-0	0.85 ±0.10		5000

Reel dimensions

Size	Qty./reel	8mm tape	12mm tape	A	N	C	D	W1	W2 max.
0201	10,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
0402	10,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
0603/0805/1206	5,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
1210	5,000	7" (Ø178mm)	---	180 +0/-3	60 +1/-0	13.0 ±0.2	21.0 ±0.8	9.0 ±0.2	12.0 ±0.2
2010	4,000	---	7" (Ø178mm)	180 +0/-3	60 +1/-0	13.5 ±0.5	21.0 ±0.8	13.6 ±0.5	16.5 ±0.5
2512	4,000	---	7" (Ø178mm)	180 +0/-3	60 +1/-0	13.5 ±0.5	21.0 ±0.8	13.6 ±0.5	16.5 ±0.5

ORDERING INFORMATION

RoHS Compliant

A M C 0 6 0 3 J 1 K 0 0 E T

Part series	Size	Tolerance	Ohms	Tape & reel
Automotive chip		K = 10% J = 5% F = 1% D = 0.5% B = 0.1%	5% in E24 values, 1% and lower tolerances available in E24 and E96 values	

rev 8/17-1