

Common Mode for Signal Line, SMD Type, SPF Series

Overview

The KEMET SPF coils are common mode chokes with a wide variety of characteristics. These SMD toroidal coils are designed with our proprietary ferrite cores and are suitable for noise countermeasure in DC signal line circuits.

Applications

- Base station

Benefits

- Proprietary S15H ferrite material
- High L due to ferrite material
- High current due to our unique design
- Withstanding voltage: 600 VDC (one minute, between lines)
- Insulation resistance: more than 10 MΩ (250 VDC, between lines)
- SMD
- Operating temperature range from -40°C to +120°C
- UL94 V-0 flame retardant rated cap
- RoHS Compliant



Part Number System

SPF-	100-	1R1A	010
Series	Rated Current (A)	Wire Diameter (mm)	Inductance Code (mH)
SPF-	100 = 10 A	R = Decimal point Example: 1R1A = 1.1 mm	010 = 1.0 mH

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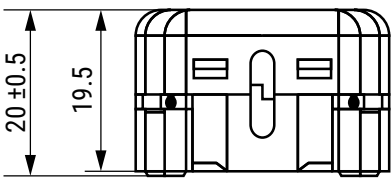
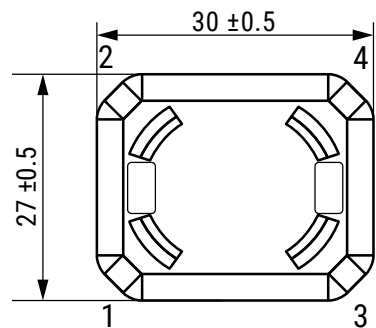
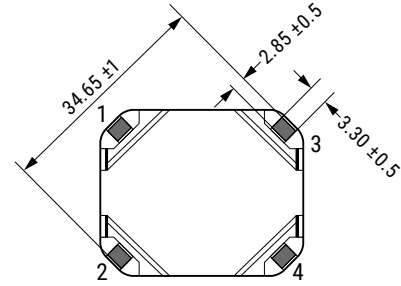
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 Чита (3022)38-34-83
 Якутск (4112)23-90-97
 Ярославль (4852)69-52-93

NOT FOR NEW DESIGN

Dimensions – Millimeters

Part Number	Dimensions - Millimeters	Top View - Millimeters	Bottom View - Millimeters
SPF-100-1R1A010	 <p>* Dimension is for reference only. Values not guaranteed.</p>		 <p>The bottom view shows terminal dimension.</p>

Environmental Compliance

All KEMET DC line filters are RoHS Compliant.



Performance Characteristics

Item	Performance Characteristics
Rated Voltage	150 VDC
Withstanding Voltage	600 VDC (1 minute, between lines)
Insulation Resistance	> 10 MΩ at 250 VDC (between lines)
Rated Current	10 A
Rated Inductance	1 mH minimum
Inductance Measurement Condition	10 kHz
Rated DC Resistance	12 mΩ maximum
Operating Temperature	-40°C to +120°C (not including self-temperature rise)

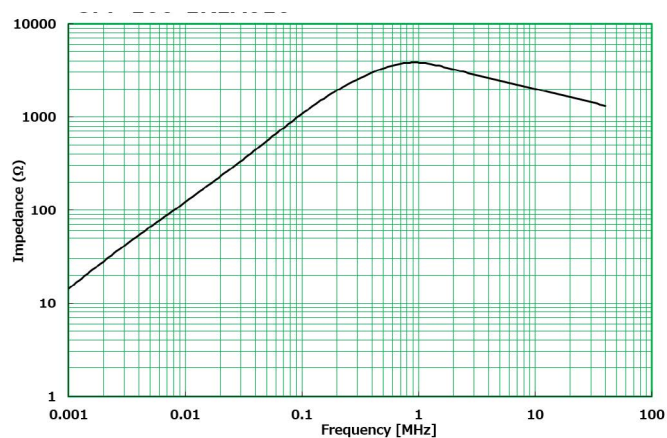
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DC Line Filters – Common Mode for Signal Line, SMD Type, SPF Series

Table 1 – Ratings & Part Number Reference

Part Number	Rated Voltage DC (V)	Rated Current DC (A)	Inductance (mH) Minimum	DC Resistance/Line (mΩ) Maximum	Weight (g)
SPF-100-1R1A010	150	10	1	10	26

Frequency Characteristics

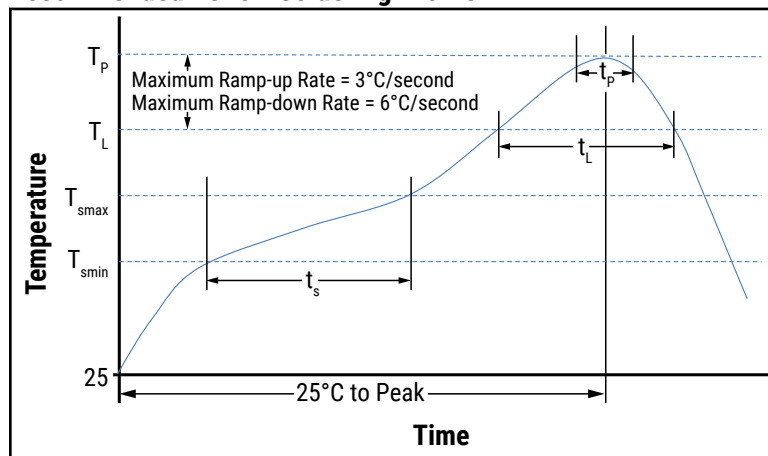


Packaging

Part Type	Packaging Type	Pieces per Package	Pieces per Box
SPF-100-1R1A010	Tray	35	210

Soldering Process

Recommended Reflow Soldering Profile:



Reference ICP/JEDEC J-STD-020E

Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Minimum (T_{smin})	150°C
Temperature Maximum (T_{smax})	180°C
Time (t_s) from T_{smin} to T_{smax}	80 – 120 seconds
Ramp-up Rate (T_L to T_p)	3°C/second maximum
Liquidous Temperature (T_L)	230°C
Time Above Liquidous (t_L)	30 – 40 seconds
Peak Temperature (T_p)	250°C
Time within 5°C of Maximum Peak Temperature (t_p)	5 seconds maximum
Ramp-down Rate (T_p to T_L)	6°C/second maximum
Time 25°C to Peak Temperature	8 minutes maximum

Common Mode for Power Line, SMD Type, SBS9080 Series

Overview

The KEMET SBS9080 coils are common mode chokes with a wide variety of characteristics. These SMD toroidal coils are suitable for noise countermeasure in DC power line circuits.

Applications

- Audio-visual equipment
- Office automation equipment
- Digital appliances
- Home appliances
- Power supplies

Benefits

- Nickel-Zinc (Ni-Zn) ferrite core
- Withstanding voltage: 125 VDC (one minute, between lines)
- Insulation resistance: more than 10 MΩ (100 VDC, between lines)
- SMD, available in Tape & Reel
- Operating temperature range from -25°C to +50°C
- UL94 V-0 flame retardant rated cap
- RoHS Compliant



Part Number System

SBS	9080-	5	09T
Series	Size	Rated Current (A)	Inductance Code μ H
SBS	9080 = 9x8 mm	5 = 5 A	09T = 0.9 μ H

Dimensions – Millimeters

Part Number	Dimensions - Millimeters	Circuit Diagram	Recommended Land Pattern - Millimeters
SBS9080	<p>Top view dimensions: 1, 2, 3, 4 (pin locations). Side view dimensions: (0.5), 5.4 max., (1.5), (7.2), 9.0±0.2, 9.7 max., (1.5), (6.3), 8.0±0.2, 8.7 max.</p>		

Environmental Compliance

KEMET SBS9080 DC Line Filters comply with EU RoHS Directive 2011/65/EU and (EU) 2015/863. Products that fall under the exemptions listed in below table are also included.



Series	RoHS Compliant	RoHS Exemption Code
SBS9080	Yes	7(a)

Code	Exemption
7(a)	Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)

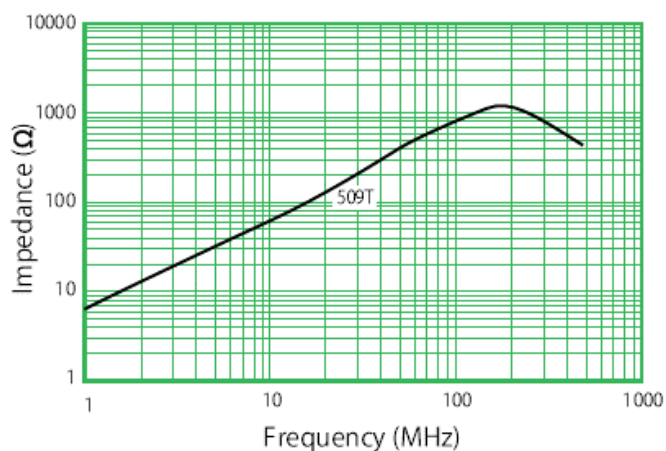
Performance Characteristics

Item	Performance Characteristics
Rated Voltage	50 VDC
Withstanding Voltage	125 VDC (1 minute, between lines)
Insulation Resistance	> 10 MΩ at 100 VDC (between lines)
Rated Current	5 A
Rated Inductance Range	0.9 μH
Inductance Measurement Condition	100 kHz
Rated DC Resistance	15 mΩ maximum
Operating Temperature	-25°C to +50°C (not including self-temperature rise)

Table 1 – Ratings & Part Number Reference

Part Number	Rated Voltage DC (V)	Rated Current DC (A)	Inductance (μH) Minimum	DC Resistance/Line (mΩ) Maximum	Weight (g)
SBS9080-509T	50	5	0.9	15	0.9

Frequency Characteristics

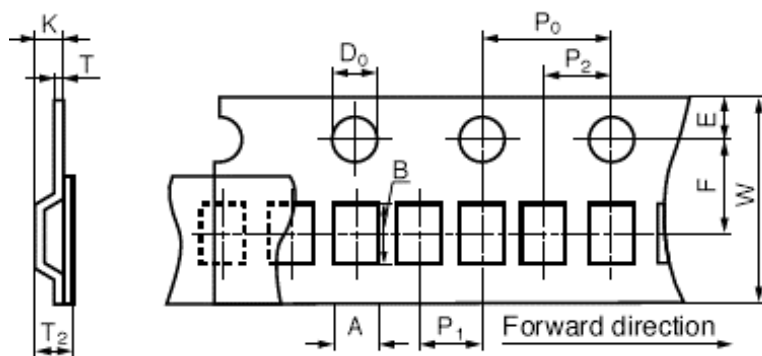


Packaging

Part Type	Packaging Type	Pieces per Package	Pieces per Box
SBS9080-509T	Tape & Reel	1,000	2,000

Taping Specifications

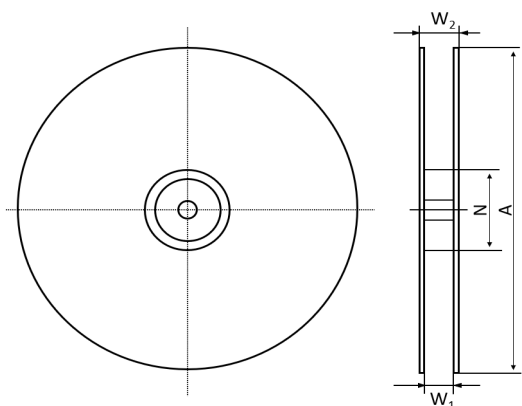
Dimensions of Indented Square Hole Plastic Tape - Millimeters



A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T	T ₂	K
±0.3	±0.3	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	+0.1, -0.0	0.6≥	7.2≥	7.0≥
9.50	10.30	16.00	7.50	1.75	12.00	2.00	4.00	1.50	0.60	7.20	7.00

Reel Specifications

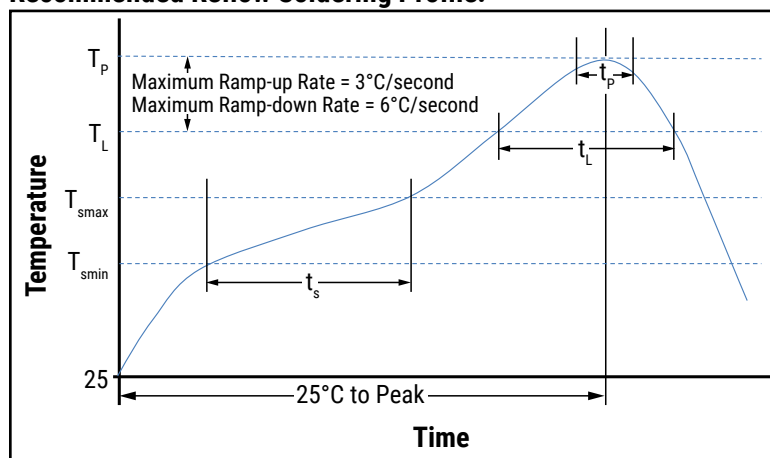
Reel Dimensions - Millimeters



A	N	W ₁ +0.5	W ₂ 25.0 ≥
330.0	100.0	17.5	25.0

Soldering Process

Recommended Reflow Soldering Profile:



Reference ICP/JEDEC J-STD-020E

Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Minimum (T_{smm})	150°C
Temperature Maximum (T_{smax})	180°C
Time (t_s) from T_{smm} to T_{smax}	80 – 120 seconds
Ramp-up Rate (T_L to T_p)	3°C/second maximum
Liquidous Temperature (T_L)	230°C
Time Above Liquidous (t_L)	30 – 40 seconds
Peak Temperature (T_p)	250°C
Time within 5°C of Maximum Peak Temperature (t_p)	5 seconds maximum
Ramp-down Rate (T_p to T_L)	6°C/second maximum
Time 25°C to Peak Temperature	8 minutes maximum

Common Mode for Signal Line, SMD Type, M-500CT Series

Overview

The KEMET M-500CT coils are common mode chokes with a wide variety of characteristics. These SMD toroidal coils are designed with our proprietary ferrite cores and are suitable for noise countermeasure in DC signal line circuits.

Applications

- Audio-visual equipment
- Office automation equipment
- Digital appliances
- Home appliances
- Power supplies

Benefits

- Proprietary Manganese-Zinc (Mn-Zn) and Nickel-Zinc (Ni-Zn) ferrite core
- Insulation resistance: more than 10 MΩ (100 VDC, between lines)
- SMD, available in Tape & Reel
- Operating temperature range from -25°C to +85°C (except M-538CT: -25°C to +70°C and M-542CT: -20°C to +75°C)
- RoHS Compliant



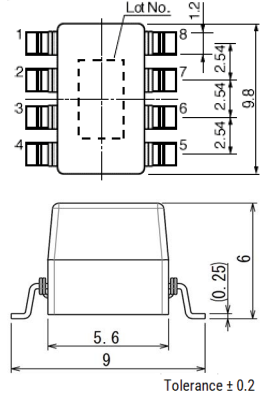
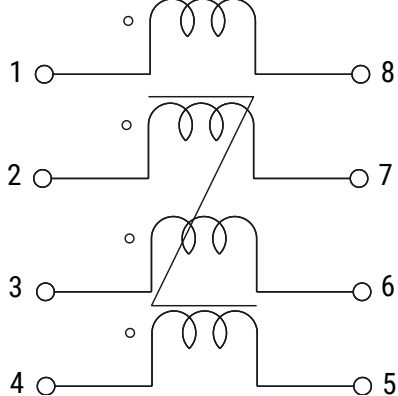
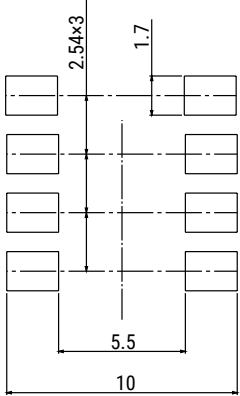
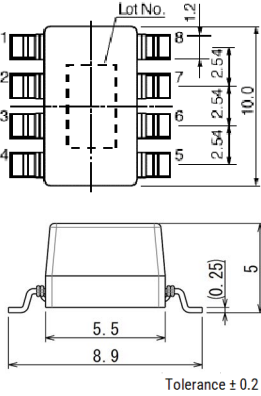
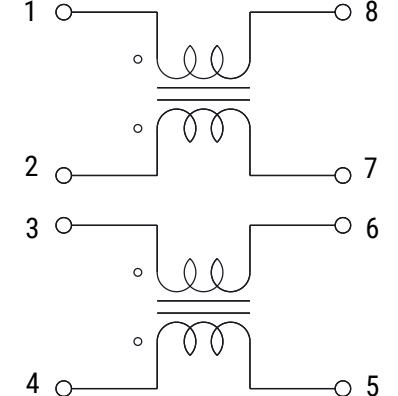
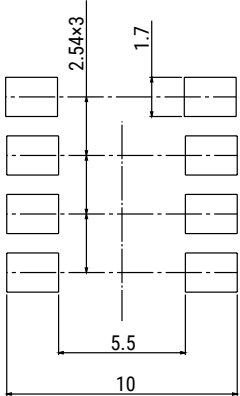
Part Number System

M-	5	2	1	CT
Series	Series Name	Number of Terminals	Internal Management Code	Packaging Type
M-	5	2 3 4	1 2 3 4 8	CT = Tape & Reel

Dimensions – Millimeters

Part Number	Dimensions - Millimeters	Circuit Diagram	Recommended Land Pattern - Millimeters
<p>M-521CT M-522CT M-523CT M-524CT</p>			
<p>M-532CT</p>			
<p>M-538CT</p>			

Dimensions – Millimeters cont.

Part Number	Dimensions - Millimeters	Circuit Diagram	Recommended Land Pattern - Millimeters
M-542CT			
M-543CT			

Environmental Compliance

All KEMET DC line filters are RoHS Compliant.



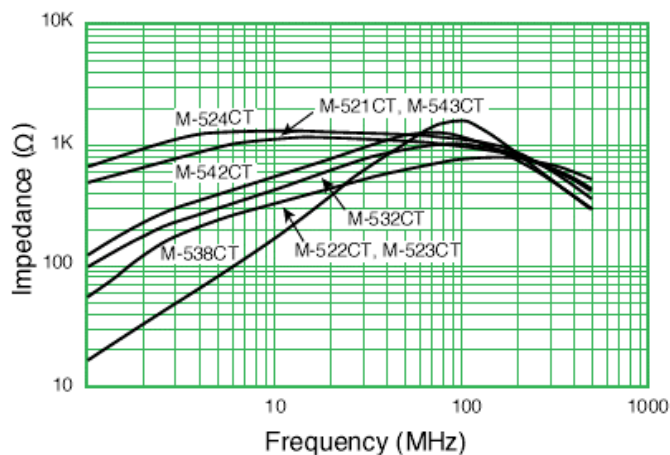
Performance Characteristics

Item	Performance Characteristics
Rated Voltage	50 VDC
Insulation Resistance	> 10 MΩ at 100 VDC (between lines)
Rated Current Range	0.5 – 1.5 A
Impedance Range	200 – 800 Ω minimum
Rated DC Resistance Range	65 – 220 mΩ maximum
Operating Temperature Range	-25°C to +85°C (not including self-temperature rise) except M-538CT: -25°C to +70°C (not including self-temperature rise) and M-542CT: -20°C to +75°C (not including self-temperature rise)

Table 1 – Ratings & Part Number Reference

Part Number	Rated Voltage DC (V)	Rated Current DC (A)	Inductance (μH) Minimum	DC Resistance/Line (mΩ) Maximum	Weight (g)
M-521CT	50	1.0	700 at 10 MHz	100	0.22
M-522CT	50	1.0	200 at 20 MHz	100	0.22
M-523CT	50	1.5	200 at 20 MHz	65	0.30
M-524CT	50	0.5	700 at 10 MHz	100	0.23
M-532CT	50	0.5	450 at 100 MHz	90	0.46
M-538CT	50	0.1	800 at 100 MHz	220	0.42
M-542CT	50	0.5	200 at 10 MHz	120	0.53
M-543CT	50	1.0	700 at 10 MHz	100	0.45

Frequency Characteristics

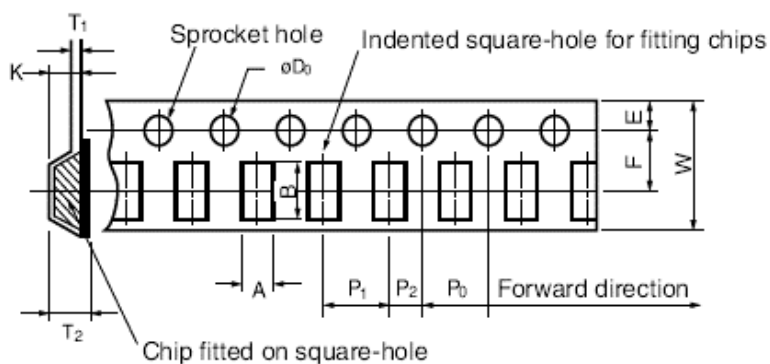


Packaging

Part Type	Packaging Type	Pieces per Package	Pieces per Box
M-521CT	Tape & Reel	1,500	3,000
M-522CT			
M-523CT			
M-524CT			
M-532CT		1,000	2,000
M-538CT		1,500	3,000
M-542CT		1,000	2,000
M-543CT			

Taping Specifications

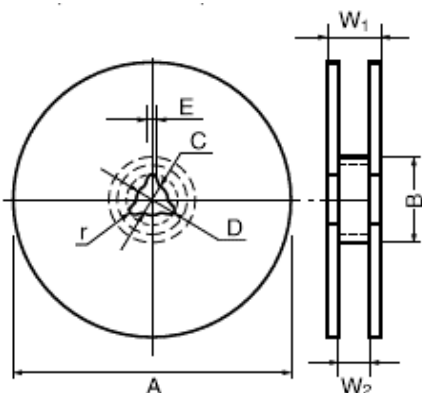
Dimensions of Indented Square Hole Plastic Tape - Millimeters



Part Number	A	B	W	F	E	P ₁	P ₂	P ₀	D ₀	T ₁	T ₂	K
	±0.3	±0.3	±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	+0.1, -0.0	Maximum	Maximum	Maximum
M-521CT	5.30	9.50	16.00	7.50	1.75	8.00	2.00	4.00	1.50	0.60	6.50	6.40
M-522CT	5.30	9.50	16.00	7.50	1.75	8.00	2.00	4.00	1.50	0.60	6.50	6.40
M-523CT	5.30	9.50	16.00	7.50	1.75	8.00	2.00	4.00	1.50	0.60	6.50	6.40
M-524CT	5.30	9.50	16.00	7.50	1.75	8.00	2.00	4.00	1.50	0.60	6.50	6.40
M-532CT	7.90	9.40	16.00	7.50	1.75	12.00	2.00	4.00	1.50	0.60	6.90	6.80
M-538CT	7.90	9.40	16.00	7.50	1.75	12.00	2.00	4.00	1.50	0.60	4.60	4.50
M-542CT	9.50	10.50	16.00	7.50	1.75	12.00	2.00	4.00	1.50	0.60	7.20	7.00
M-543CT	9.50	10.50	16.00	7.50	1.75	12.00	2.00	4.00	1.50	0.60	7.20	7.00

Reel Specifications

Reel Dimensions - Millimeters

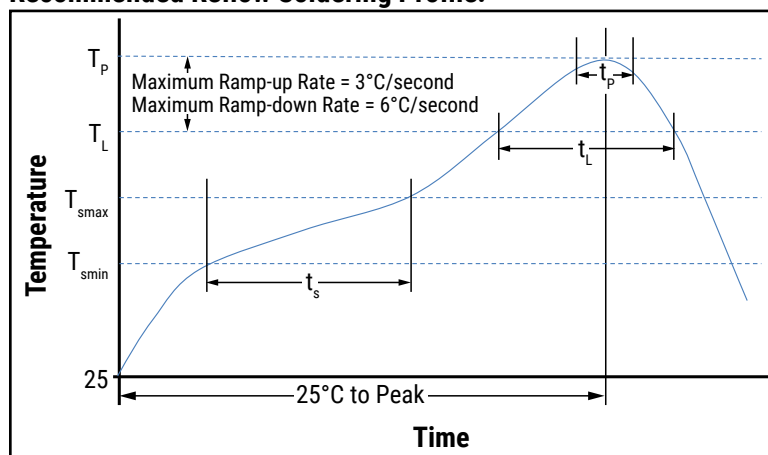


Part Number	A	B	C	D	E	r	W ₁	W ₂
	±3.0	±2.0	±0.4	±0.8	±0.5	-	Maximum	+6.0, -0.0
M-521CT	330.0	100.0	13.2	21.0	2.6	1.0	25.0	16.0
M-522CT	330.0	100.0	13.2	21.0	2.6	1.0	25.0	16.0
M-523CT	330.0	100.0	13.2	21.0	2.6	1.0	25.0	16.0
M-524CT	330.0	100.0	13.2	21.0	2.6	1.0	25.0	16.0
M-532CT	330.0	80.0	13.0	21.0	2.0	1.0	25.0	16.0
M-538CT	330.0	80.0	13.0	21.0	2.0	1.0	25.0	16.0

Part Number	A	B	C	D	E	r	W ₁	W ₂
	±3.0	±2.0	±0.2	±0.8	±0.5	-	Maximum	+6.0, -0.0
M-542CT	330.0	80.0	13.0	21.0	2.0	1.0	25.0	16.0
M-543CT	330.0	80.0	13.0	21.0	2.0	1.0	25.0	16.0

Soldering Process

Recommended Reflow Soldering Profile:



Reference ICP/JEDEC J-STD-020E

Profile Feature	Pb-Free Assembly
Preheat/Soak	
Temperature Minimum (T_{smin})	150°C
Temperature Maximum (T_{smax})	180°C
Time (t_s) from T_{smin} to T_{smax}	80 – 120 seconds
Ramp-up Rate (T_l to T_p)	3°C/second maximum
Liquidous Temperature (T_l)	230°C
Time Above Liquidous (t_l)	30 – 40 seconds
Peak Temperature (T_p)	250°C
Time within 5°C of Maximum Peak Temperature (t_p)	5 seconds maximum
Ramp-down Rate (T_p to T_l)	6°C/second maximum
Time 25°C to Peak Temperature	8 minutes maximum

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Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93