

Low Rho INTRODUCTION AND HIGHLIGHT

Low Rho PPTC Resettable Fuse takes advantage of newly developed conductive material technology and manufacturing processing capability; which offer ultra low resistance and miniature device dimension. Fuzetec is pleased to offer Low Rho PPTC device in both SMD and Strap type forms which are ideal for Portable electronics Battery protection/Protection Circuit Module (PCM), high speed data /charging USB 3.0 and other applications where compact space and flexible design are highly required.

FEATURE

- Ultra Low Resistance
- Smaller Dimension, only 1/4 of Std. Carbon PPTC.
- Less Voltage Drop (Lower Resistance)
- Higher Ihold (same dimension)
- Lower Power Consumption (Smaller Pd)

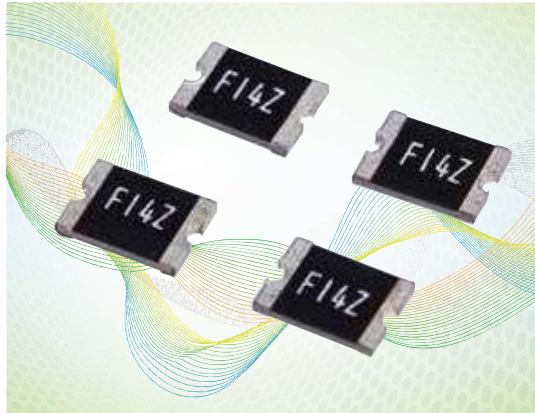
TYPICAL APPLICATION

- Portable Electronics : SMART PHONE and TABLET PC....,etc.
- USB 3.0

HOW Low Rho PPTCs BENEFIT YOUR PORTABLE ELECTRONICS?

- Longer Use/Stand by Time
- Faster Data Transmission rate
- Faster Power Charging Speed
- Low Noise on Signal/Data Transmission
- Lower Power Consumption

Low Rho FSMD1812 Series



Application

All high-density boards

Product Features

Small surface mountable, Solid state, Faster time to trip than standard SMD devices, Lower resistance than standard SMD devices



Operation Current

1.40A~6.00A

Maximum Voltage

6V_{DC}



Temperature Range

-40°C to 85°C

Agency Recognition

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50090556)



Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max. Current	Typ. Power	Max. Time to trip		Resistance	
	I_H , A	I_T , A	V_{MAX} , V _{DC}	I_{MAX} , A	P_d , W	Current	Time	R_{MIN}	$R1_{MAX}$
	I_H , A	I_T , A	V_{MAX} , V _{DC}	I_{MAX} , A	P_d , W	A	Sec	Ohms	Ohms
FSMD140RZ	1.40	3.60	6	100	1.0	8.0	3.00	0.0100	0.0350
FSMD190RZ	1.90	4.90	6	100	1.0	8.0	5.00	0.0030	0.0250
FSMD270RZ	2.70	6.20	6	100	1.0	13.5	3.00	0.0030	0.0230
FSMD300RZ	3.00	7.00	6	100	1.0	15.0	2.00	0.0030	0.0220
FSMD370RZ	3.70	9.10	6	100	1.0	18.5	2.00	0.0030	0.0180
FSMD500RZ	5.00	10.00	6	100	1.0	25.0	2.00	0.0015	0.0140
FSMD600RZ	6.00	12.00	6	100	1.0	30.0	3.00	0.0010	0.0100

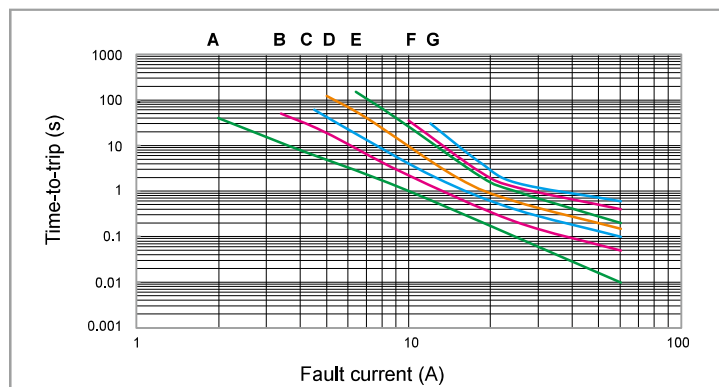
Low Rho

Thermal Derating for PPTC Device at Various Ambient Temperatures

TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	145%	130%	115%	100%	92%	84%	77%	69%	61%	50%

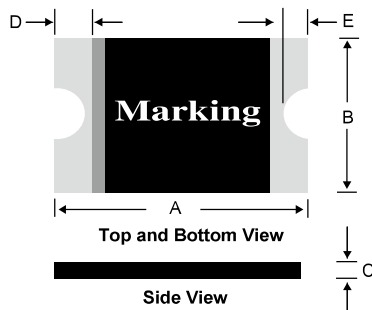
Typical Time-To-Trip at 23°C

A = FSMD140RZ
 B = FSMD190RZ
 C = FSMD270RZ
 D = FSMD300RZ
 E = FSMD370RZ
 F = FSMD500RZ
 G = FSMD600RZ



* For Reflow Soldering Profile information, please refer to P.78 “ IV APPENDIX – SMD PRODUCT SOLDER REFLOW RECOMMENDATIONS ”

Low Rho FSMD1812 Product Dimensions (mm)

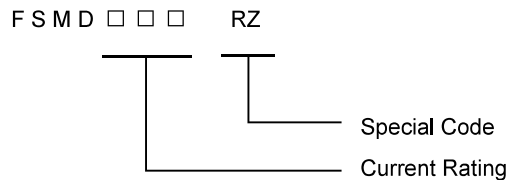


Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSMD140RZ	4.37	4.73	3.07	3.41	0.30	0.70	0.25	0.95	0.25	0.65
FSMD190RZ	4.37	4.73	3.07	3.41	0.30	0.70	0.25	0.95	0.25	0.65
FSMD270RZ	4.37	4.73	3.07	3.41	0.30	0.70	0.25	0.95	0.25	0.65
FSMD300RZ	4.37	4.73	3.07	3.41	0.30	0.70	0.25	0.95	0.25	0.65
FSMD370RZ	4.37	4.73	3.07	3.41	0.30	0.70	0.25	0.95	0.25	0.65
FSMD500RZ	4.37	4.73	3.07	3.41	0.30	0.70	0.25	0.95	0.25	0.65
FSMD600RZ	4.37	4.73	3.07	3.41	0.30	1.00	0.25	0.95	0.25	0.65

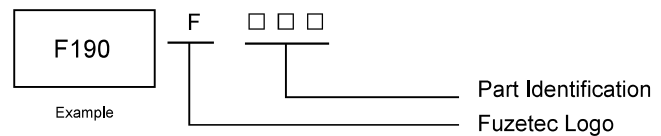
Physical specifications

Termination pad materials : Pure Tin

Part Numbering System



Part Marking System



F14Z = FSMD140RZ
 F190 = FSMD190RZ
 F27Z = FSMD270RZ
 F30Z = FSMD300RZ
 F37Z = FSMD370RZ
 F50Z = FSMD500RZ
 F60Z = FSMD600RZ

Package Information

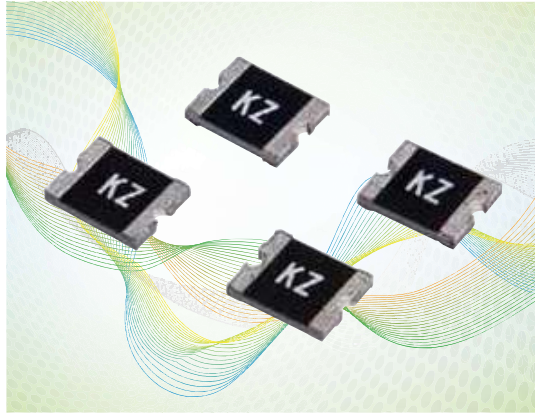
Part Number	Standard Package
FSMD140RZ~ FSMD600RZ	: 2.0K Reel/Tape

Warning :

- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
- PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
- Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.



Low Rho FSMD1210 Series



Application

All high-density boards

Product Features

Small surface mountable, Solid state, Faster time to trip than standard SMD devices, Lower resistance than standard SMD devices



Operation Current

1.75A~7.50A

Maximum Voltage

6V_{DC}



Temperature Range

-40°C to 85°C

Agency Recognition

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50090556)



SVHC Compliant

Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max. Current	Typ. Power	Max. Time to trip		Resistance	
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	Current	Time	R _{MIN}	R _{1 MAX}
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	A	Sec	Ohms	Ohms
FSMD175-1210RZ	1.75	3.50	6	100	1.0	8.00	2.50	0.006	0.040
FSMD200-1210RZ	2.00	4.90	6	100	1.0	8.00	3.00	0.005	0.024
FSMD260-1210RZ	2.60	5.00	6	100	0.8	8.00	4.00	0.003	0.020
FSMD300-1210RZ	3.00	6.00	6	100	0.8	15.00	2.00	0.003	0.020
FSMD350-1210RZ	3.50	7.00	6	100	1.0	17.50	2.00	0.003	0.018
FSMD380-1210RZ	3.80	8.00	6	100	1.0	8.00	5.00	0.002	0.016
FSMD400-1210RZ	4.00	8.00	6	100	1.0	8.00	5.00	0.002	0.016
FSMD450-1210RZ	4.50	9.00	6	100	1.0	22.50	2.00	0.001	0.014
FSMD650-1210RZ	6.50	13.00	6	100	1.2	32.50	2.00	0.001	0.009
FSMD700-1210RZ	7.00	14.00	6	100	1.2	35.00	2.00	0.001	0.008
FSMD750-1210RZ	7.50	15.00	6	100	1.2	37.50	2.00	0.001	0.007

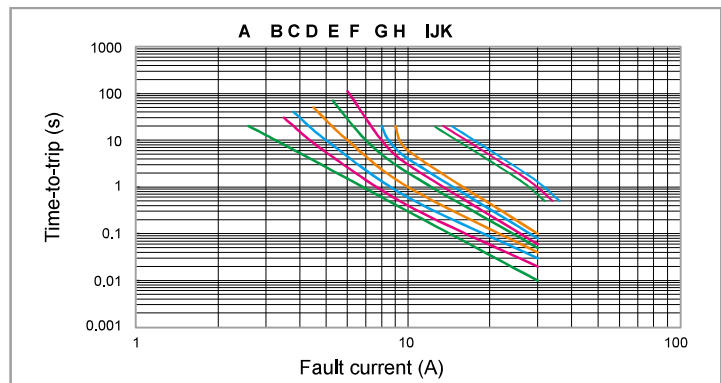
Low Rho

Thermal Derating for PPTC Device at Various Ambient Temperatures

TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	145%	130%	115%	100%	92%	84%	77%	69%	61%	50%

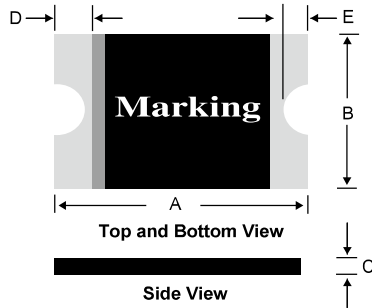
Typical Time-To-Trip at 23°C

A = FSMD175-1210RZ	G = FSMD400-1210RZ
B = FSMD200-1210RZ	H = FSMD450-1210RZ
C = FSMD260-1210RZ	I = FSMD650-1210RZ
D = FSMD300-1210RZ	J = FSMD700-1210RZ
E = FSMD350-1210RZ	K = FSMD750-1210RZ
F = FSMD380-1210RZ	



* For Reflow Soldering Profile information, please refer to P.78 “ IV APPENDIX – SMD PRODUCT SOLDER REFLOW RECOMMENDATIONS ”

Low Rho FSMD1210 Product Dimensions (mm)



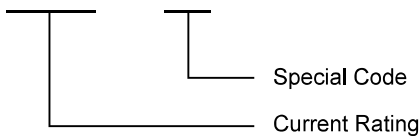
Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSMD175-1210RZ	3.00	3.43	2.35	2.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD200-1210RZ	3.00	3.43	2.35	2.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD260-1210RZ	3.00	3.43	2.35	2.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD300-1210RZ	3.00	3.43	2.35	2.80	0.30	1.00	0.25	0.75	0.10	0.45
FSMD350-1210RZ	3.00	3.43	2.35	2.80	0.30	1.00	0.25	0.75	0.10	0.45
FSMD380-1210RZ	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD400-1210RZ	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD450-1210RZ	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD650-1210RZ	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD700-1210RZ	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD750-1210RZ	3.00	3.43	2.35	2.80	0.60	1.00	0.25	0.75	0.10	0.45

Physical specifications

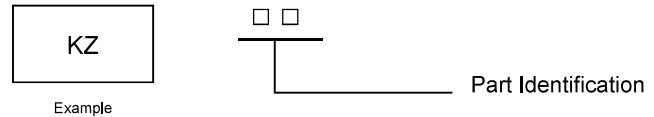
Termination pad materials : Pure Tin

Part Numbering System

FSMD □ □ □ - 1210 RZ



Part Marking System



KZ = FSMD175-1210RZ	XZ = FSMD400-1210RZ
MZ = FSMD200-1210RZ	YZ = FSMD450-1210RZ
QZ = FSMD260-1210RZ	CZ = FSMD650-1210RZ
SZ = FSMD300-1210RZ	DZ = FSMD700-1210RZ
VZ = FSMD350-1210RZ	EZ = FSMD750-1210RZ
WZ = FSMD380-1210RZ	

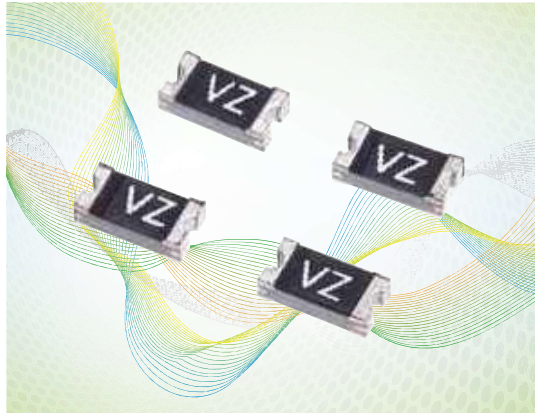
Package Information

Part Number	Standard Package
FSMD175-1210RZ~ FSMD260-1210RZ	4.0K Reel/Tape
FSMD300-1210RZ~ FSMD750-1210RZ	3.0K Reel/Tape

- Warning :**
- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
 - PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
 - Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.



Low Rho FSMD1206 Series



Application

All high-density boards

Product Features

Small surface mountable, Solid state, Faster time to trip than standard SMD devices, Lower resistance than standard SMD devices



Operation Current

0.50~7.00A

Maximum Voltage

6V_{DC}



Temperature Range

-40°C to 85°C

Agency Recognition

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50090556)



Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max. Current	Typ. Power	Max. Time to trip		Resistance	
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	Current	Time	R _{MIN}	R1 _{MAX}
						A	Sec	Ohms	Ohms
FSMD050-1206RZ	0.50	1.50	6	100	0.8	8.0	0.20	0.025	0.200
FSMD075-1206RZ	0.75	1.80	6	100	0.8	8.0	0.30	0.018	0.180
FSMD110-1206RZ	1.10	2.20	6	100	0.8	8.0	0.30	0.015	0.100
FSMD150-1206RZ	1.50	3.00	6	100	0.8	8.0	0.30	0.010	0.065
FSMD175-1206RZ	1.75	3.50	6	100	0.8	8.0	0.40	0.005	0.030
FSMD200-1206RZ	2.00	4.00	6	100	0.8	8.0	0.50	0.005	0.025
FSMD260-1206RZ	2.60	5.20	6	100	0.8	8.0	4.00	0.003	0.025
FSMD300-1206RZ	3.00	6.00	6	100	0.8	8.0	4.00	0.003	0.020
FSMD350-1206RZ	3.50	7.00	6	100	0.8	8.0	5.00	0.003	0.018
FSMD380-1206RZ	3.80	8.00	6	100	0.8	8.0	5.00	0.002	0.014
FSMD400-1206RZ	4.00	8.00	6	100	0.8	8.0	5.00	0.002	0.014
FSMD450-1206RZ	4.50	9.00	6	100	0.8	22.5	2.00	0.001	0.014
FSMD500-1206RZ	5.00	10.00	6	100	0.8	25.0	5.00	0.001	0.012
FSMD600-1206RZ	6.00	12.00	6	100	1.0	30.0	2.00	0.001	0.010
FSMD700-1206RZ	7.00	14.00	6	100	1.0	35.0	2.00	0.001	0.008

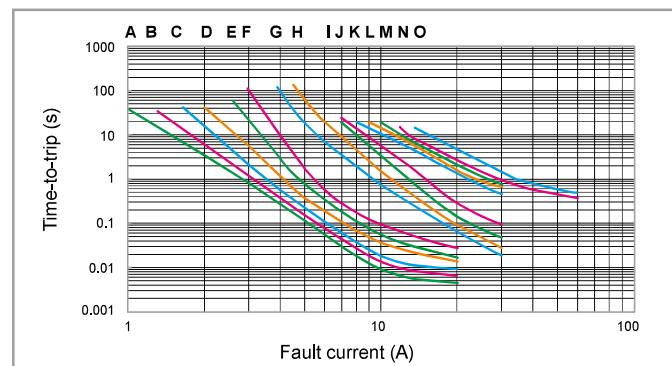
Low Rho

Thermal Derating for PPTC Device at Various Ambient Temperatures

TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	145%	130%	115%	100%	92%	84%	77%	69%	61%	50%

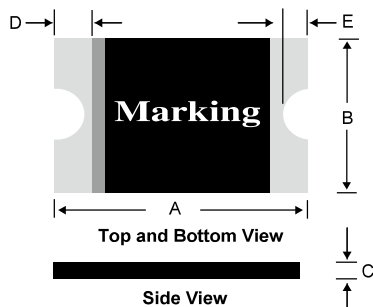
Typical Time-To-Trip at 23°C

A = FSMD050-1206RZ	I = FSMD350-1206RZ
B = FSMD075-1206RZ	J = FSMD380-1206RZ
C = FSMD110-1206RZ	K = FSMD400-1206RZ
D = FSMD150-1206RZ	L = FSMD450-1206RZ
E = FSMD175-1206RZ	M = FSMD500-1206RZ
F = FSMD200-1206RZ	N = FSMD600-1206RZ
G = FSMD260-1206RZ	O = FSMD700-1206RZ
H = FSMD300-1206RZ	



* For Reflow Soldering Profile information, please refer to P.78 " IV APPENDIX – SMD PRODUCT SOLDER REFLOW RECOMMENDATIONS "

Low Rho FSMD1206 Product Dimensions (mm)



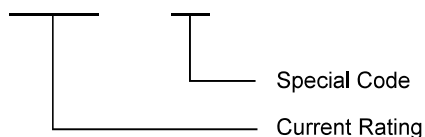
Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSMD050-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD075-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD110-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD150-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD175-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD200-1206RZ	3.00	3.50	1.50	1.80	0.30	0.70	0.25	0.75	0.10	0.45
FSMD260-1206RZ	3.00	3.50	1.50	1.80	0.30	1.00	0.25	0.75	0.10	0.45
FSMD300-1206RZ	3.00	3.50	1.50	1.80	0.30	1.00	0.25	0.75	0.10	0.45
FSMD350-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD380-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD400-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD450-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD500-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD600-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45
FSMD700-1206RZ	3.00	3.50	1.50	1.80	0.60	1.00	0.25	0.75	0.10	0.45

Physical specifications

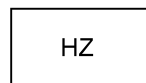
Termination pad materials : Pure Tin

Part Numbering System

F S M D □ □ □ - 1206 RZ



Part Marking System



Example



Part Identification

EZ = FSMD050-1206RZ
 FZ = FSMD075-1206RZ
 HZ = FSMD110-1206RZ
 JZ = FSMD150-1206RZ
 KZ = FSMD175-1206RZ
 MZ = FSMD200-1206RZ
 QZ = FSMD260-1206RZ
 SZ = FSMD300-1206RZ

VZ = FSMD350-1206RZ
 WZ = FSMD380-1206RZ
 XZ = FSMD400-1206RZ
 YZ = FSMD450-1206RZ
 ZZ = FSMD500-1206RZ
 BZ = FSMD600-1206RZ
 DZ = FSMD700-1206RZ

Package Information

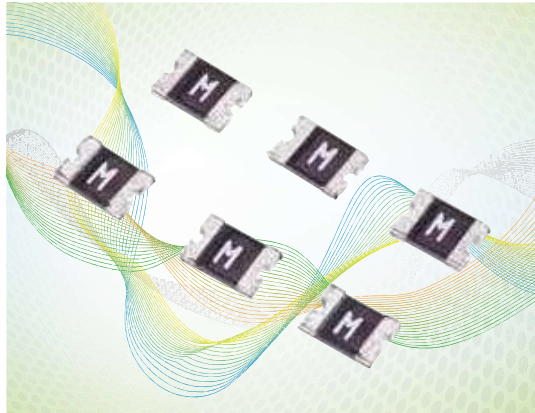
Part Number	Standard Package
FSMD050-1206RZ~ FSMD200-1206RZ	: 4.0K Reel/Tape
FSMD260-1206RZ~ FSMD450-1206RZ	: 3.0K Reel/Tape
FSMD500-1206RZ~ FSMD600-1206RZ	: 2.0K Reel/Tape
FSMD700-1206RZ	: 3.0K Reel/Tape

Warning :

- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
- PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
- Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.



Low Rho FSMD0805 Series



Application

All high-density boards

Product Features

Small surface mountable, Solid state, Faster time to trip than standard SMD devices, Lower resistance than standard SMD devices



Operation Current

0.75A~3.50A

Maximum Voltage

6V_{DC}



Temperature Range

-40°C to 85°C

Agency Recognition

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50090556)



Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max. Current	Typ. Power	Max. Time to trip		Resistance	
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	Current	Time	R _{MIN}	R1 _{MAX}
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	A	Sec	Ohms	Ohms
FSMD075-0805RZ	0.75	1.50	6	100	0.6	8.0	0.20	0.040	0.160
FSMD110-0805RZ	1.10	1.80	6	100	0.6	8.0	0.30	0.030	0.130
FSMD125-0805RZ	1.25	2.50	6	100	0.6	8.0	0.30	0.025	0.110
FSMD150-0805RZ	1.50	3.00	6	100	0.6	8.0	0.30	0.015	0.065
FSMD175-0805RZ	1.75	3.50	6	100	0.6	8.0	0.60	0.005	0.055
FSMD200-0805RZ	2.00	4.00	6	100	0.6	8.0	1.00	0.005	0.045
FSMD260-0805RZ	2.60	5.20	6	100	0.6	8.0	4.00	0.003	0.035
FSMD300-0805RZ	3.00	7.00	6	100	0.6	8.0	5.00	0.003	0.030
FSMD350-0805RZ	3.50	7.00	6	100	0.6	8.0	5.00	0.002	0.025

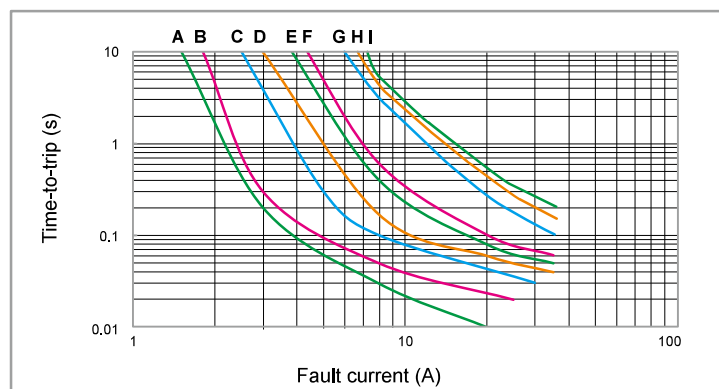
Low Rho

Thermal Derating for PPTC Device at Various Ambient Temperatures

TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	145%	130%	115%	100%	92%	84%	77%	69%	61%	50%

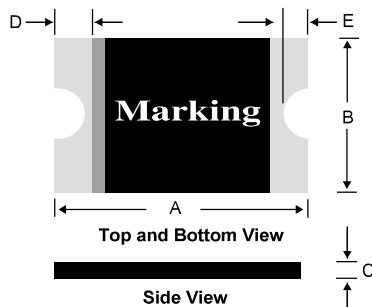
Typical Time-To-Trip at 23°C

- A = FSMD075-0805RZ
- B = FSMD110-0805RZ
- C = FSMD125-0805RZ
- D = FSMD150-0805RZ
- E = FSMD175-0805RZ
- F = FSMD200-0805RZ
- G = FSMD260-0805RZ
- H = FSMD300-0805RZ
- I = FSMD350-0805RZ



* For Reflow Soldering Profile information, please refer to P.78 “ IV APPENDIX – SMD PRODUCT SOLDER REFLOW RECOMMENDATIONS ”

Low Rho FSMD0805 Product Dimensions (mm)



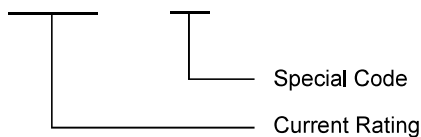
Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSMD075-0805RZ	2.00	2.20	1.20	1.50	0.30	0.70	0.20	0.60	0.10	0.45
FSMD110-0805RZ	2.00	2.20	1.20	1.50	0.30	0.70	0.20	0.60	0.10	0.45
FSMD125-0805RZ	2.00	2.20	1.20	1.50	0.30	0.70	0.20	0.60	0.10	0.45
FSMD150-0805RZ	2.00	2.20	1.20	1.50	0.30	0.70	0.20	0.60	0.10	0.45
FSMD175-0805RZ	2.00	2.20	1.20	1.50	0.30	0.70	0.20	0.60	0.10	0.45
FSMD200-0805RZ	2.00	2.20	1.20	1.50	0.30	0.70	0.20	0.60	0.10	0.45
FSMD260-0805RZ	2.00	2.20	1.20	1.50	0.60	1.40	0.20	0.60	0.10	0.45
FSMD300-0805RZ	2.00	2.20	1.20	1.50	0.60	1.40	0.20	0.60	0.10	0.45
FSMD350-0805RZ	2.00	2.20	1.20	1.50	0.60	1.40	0.20	0.60	0.10	0.45

Physical specifications

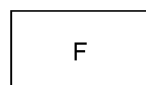
Termination pad materials : Pure Tin

Part Numbering System

F S M D □ □ □ - 0805 RZ



Part Marking System



F = FSMD075-0805RZ	M = FSMD200-0805RZ
H = FSMD110-0805RZ	Q = FSMD260-0805RZ
I = FSMD125-0805RZ	S = FSMD300-0805RZ
J = FSMD150-0805RZ	V = FSMD350-0805RZ
K = FSMD175-0805RZ	

Package Information

Part Number	Standard Package
FSMD075-0805RZ~ FSMD200-0805RZ	: 4.0K Reel/Tape
FSMD260-0805RZ~ FSMD350-0805RZ	: 3.0K Reel/Tape

Warning :

- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
- PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
- Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.



Low Rho FSMD0603 Series



Application

All high-density boards

Product Features

Small surface mountable, Solid state, Faster time to trip than standard SMD devices, Lower resistance than standard SMD devices



Operation Current

0.25A~1.00A

Maximum Voltage

6V~9V_{DC}



Temperature Range

-40°C to 85°C

Agency Recognition

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50090556)



Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max. Current	Typ. Power	Max. Time to trip		Resistance	
	I_H , A	I_T , A	V_{MAX} , V _{DC}	I_{MAX} , A	P_d , W	Current	Time	R_{MIN}	$R1_{MAX}$
	I_H , A	I_T , A	V_{MAX} , V _{DC}	I_{MAX} , A	P_d , W	A	Sec	Ohms	Ohms
FSMD025-0603RZ	0.25	0.55	9	100	0.5	8.0	0.08	0.500	3.000
FSMD035-0603RZ	0.35	0.75	6	100	0.5	8.0	0.10	0.200	1.000
FSMD050-0603RZ	0.50	1.00	6	100	0.6	8.0	0.10	0.070	0.350
FSMD075-0603RZ	0.75	1.50	6	100	0.6	8.0	0.20	0.050	0.250
FSMD100-0603RZ	1.00	1.80	6	100	0.6	8.0	0.30	0.040	0.120

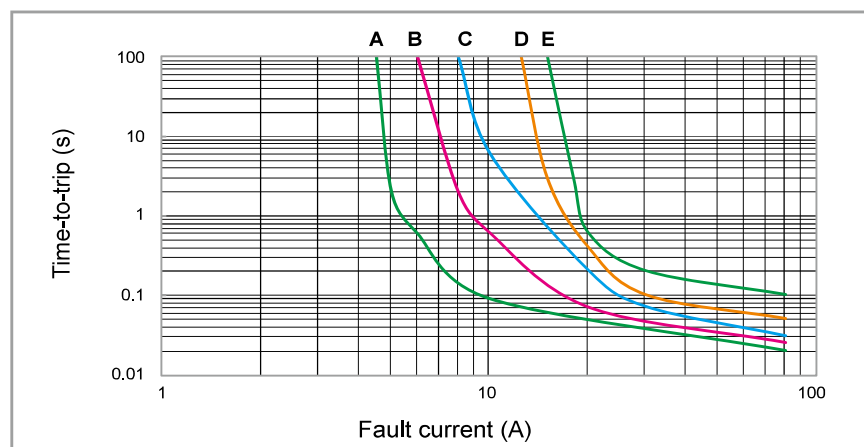
Low Rho

Thermal Derating for PPTC Device at Various Ambient Temperatures

TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	145%	130%	115%	100%	92%	84%	77%	69%	61%	50%

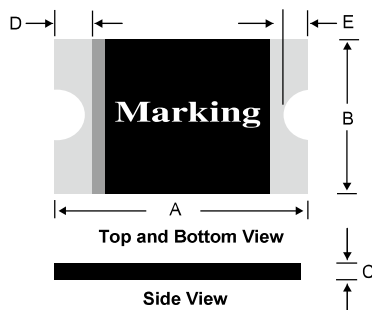
Typical Time-To-Trip at 23°C

- A = FSMD025-0603RZ
- B = FSMD035-0603RZ
- C = FSMD050-0603RZ
- D = FSMD075-0603RZ
- E = FSMD100-0603RZ



* For Reflow Soldering Profile information, please refer to P.78 " IV APPENDIX – SMD PRODUCT SOLDER REFLOW RECOMMENDATIONS "

Low Rho FSMD0603 Product Dimensions (mm)



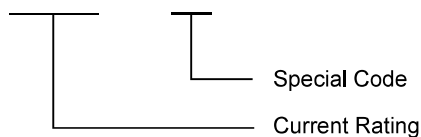
Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSMD025-0603RZ	1.40	1.80	0.45	1.00	0.30	0.70	0.10	0.50	0.08	0.40
FSMD035-0603RZ	1.40	1.80	0.45	1.00	0.30	0.70	0.10	0.50	0.08	0.40
FSMD050-0603RZ	1.40	1.80	0.45	1.00	0.30	0.70	0.10	0.50	0.08	0.40
FSMD075-0603RZ	1.40	1.80	0.45	1.00	0.30	0.70	0.10	0.50	0.08	0.40
FSMD100-0603RZ	1.40	1.80	0.45	1.00	0.30	0.70	0.10	0.50	0.08	0.40

Physical specifications

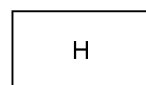
Termination pad materials : Pure Tin

Part Numbering System

F S M D □ □ □ - 0603 RZ



Part Marking System



Example



H = FSMD025-0603RZ
I = FSMD035-0603RZ
J = FSMD050-0603RZ
K = FSMD075-0603RZ
L = FSMD100-0603RZ

Package Information

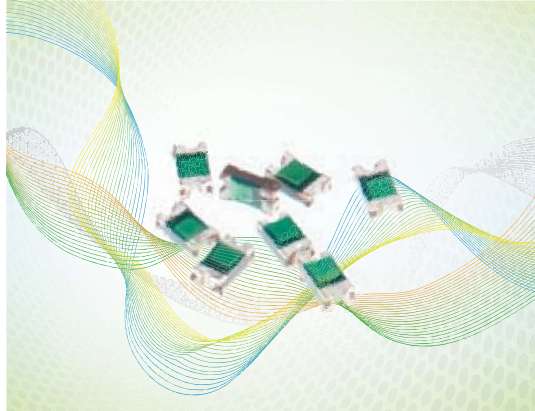
Part Number	Standard Package
FSMD025-0603RZ~ FSMD100-0603RZ	4.0K Reel/Tape

Warning :

- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
- PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
- Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.



Low Rho FSMD0402 Series



Application

All high-density boards

Product Features

Small surface mountable, Solid state, Faster time to trip than standard SMD devices, Lower resistance than standard SMD devices



Operation Current

0.10A~0.50A

Maximum Voltage

6V_{DC}



Temperature Range

-40°C to 85°C

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50090556)



Electrical Characteristics (23°C)

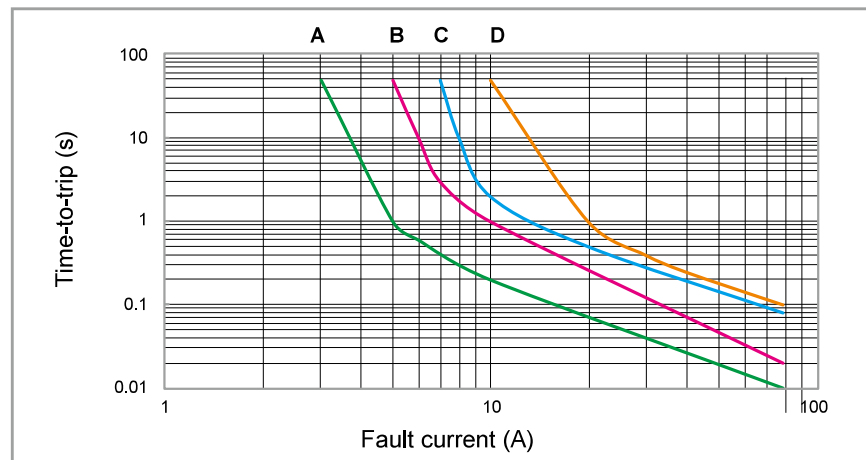
Part Number	Hold Current	Trip Current	Rated Voltage	Max. Current	Typ. Power	Max. Time to trip		Resistance	
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	Current	Time	R _{MIN}	R _{1MAX}
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	A	Sec	Ohms	Ohms
FSMD010-0402RZ	0.10	0.30	6	100	0.5	0.5	1.0	0.150	2.000
FSMD020-0402RZ	0.20	0.50	6	100	0.5	1.0	1.0	0.100	1.250
FSMD035-0402RZ	0.35	0.70	6	100	0.5	8.0	0.1	0.050	0.700
FSMD050-0402RZ	0.50	1.00	6	100	0.5	8.0	0.1	0.040	0.400

Thermal Derating for PPTC Device at Various Ambient Temperatures

TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	145%	130%	115%	100%	92%	84%	77%	69%	61%	50%

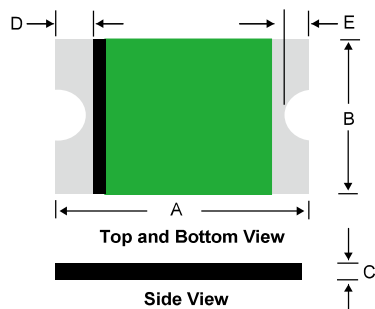
Typical Time-To-Trip at 23°C

A = FSMD010-0402RZ
B = FSMD020-0402RZ
C = FSMD035-0402RZ
D = FSMD050-0402RZ



* For Reflow Soldering Profile information, please refer to P.78 “ IV APPENDIX – SMD PRODUCT SOLDER REFLOW RECOMMENDATIONS ”

Low Rho FSMD0402 Product Dimensions (mm)



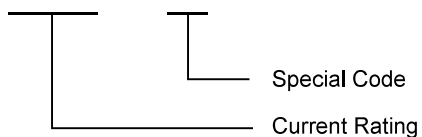
Part Number	A		B		C		D		E	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSMD010-0402RZ	0.85	1.15	0.35	0.65	0.30	0.60	0.10	0.45	0.05	0.40
FSMD020-0402RZ	0.85	1.15	0.35	0.65	0.30	0.60	0.10	0.45	0.05	0.40
FSMD035-0402RZ	0.85	1.15	0.35	0.65	0.30	0.60	0.10	0.45	0.05	0.40
FSMD050-0402RZ	0.85	1.15	0.35	0.65	0.30	0.60	0.10	0.45	0.05	0.40

Physical specifications

Termination pad materials : Pure Tin

Part Numbering System

F S M D □ □ □ - 0402 RZ



Package Information

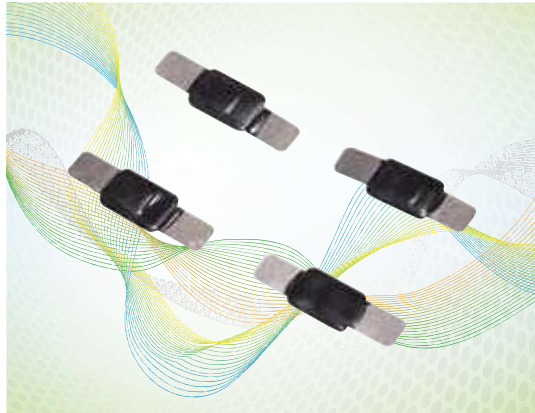
Part Number	Standard Package
FSMD010-0402RZ~ FSMD050-0402RZ	10K Reel/Tape

Warning :

- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
- PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
- Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.



Low Rho STRAP FSL Series



Application

Rechargeable battery packs protection, especially for Smart Phone and Tablet PC.

Product Features

Low resistance, Solid state



Operation Current

1.40A~7.00A

Maximum Voltage

6V_{DC}



Temperature Range

-40°C to 85°C

Agency Recognition

AGENCY	AGENCY FILE NUMBER
	UL(E211981)
	C-UL(E211981)
	TÜV (R50004084)



Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Rated Voltage	Max. Current	Typ. Power	Max. Time to trip		Resistance		
	I _H , A	I _T , A	V _{MAX} , V _{DC}	I _{MAX} , A	P _d , W	Current	Time	R _{MIN}	R _{MAX}	R1 _{MAX}
						A	Sec	Ohms	Ohms	Ohms
FSL140F-N	1.40	3.60	6	50	1.0	7.0	3.0	0.0100	0.0200	0.0350
FSL190F-N	1.90	4.90	6	50	1.0	9.5	3.0	0.0060	0.0140	0.0240
FSL250F-N	2.50	8.00	6	50	1.0	12.5	3.0	0.0060	0.0120	0.0200
FSL270F-N	2.70	8.10	6	50	1.0	13.5	2.0	0.0060	0.0120	0.0180
FSL310F-N	3.10	8.80	6	50	1.0	15.5	3.0	0.0040	0.0100	0.0160
FSL370F-N	3.70	9.00	6	50	1.0	18.5	5.0	0.0030	0.0080	0.0140
FSL450LF-N	4.50	9.50	6	50	1.0	22.5	3.0	0.0025	0.0055	0.0100
FSL500F-N	5.00	10.00	6	50	1.0	25.0	3.0	0.0015	0.0050	0.0090
FSL700F-N	7.00	14.00	6	50	1.0	25.0	3.0	0.0010	0.0045	0.0080

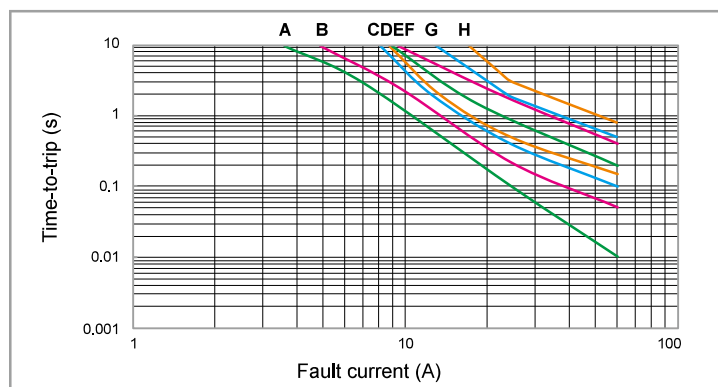
Low Rho

Thermal Derating for PPTC Device at Various Ambient Temperatures

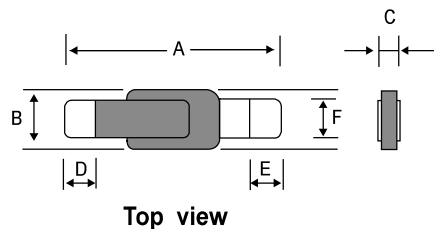
TEMPERATURE	-40°C	-20°C	0°C	23°C	30°C	40°C	50°C	60°C	70°C	85°C
DERATING %	184%	158%	131%	100%	93%	79%	67%	54%	40%	20%

Typical Time-To-Trip at 23°C

- A = FSL140F-N
- B = FSL190F-N
- C = FSL250F-N
- D = FSL270F-N
- E = FSL310F-N
- F = FSL370F-N
- G = FSL450LF-N
- H = FSL500F-N



Low Rho Product Dimensions (mm)



Part Number	A		B		C		D		E		F	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
FSL140F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL190F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL250F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL270F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL310F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL370F-N	9.20	10.80	3.15	3.45	0.55	1.10	2.15	3.25	2.15	3.25	2.20	2.40
FSL450LF-N	20.50	21.50	3.50	3.90	0.55	1.10	7.00	8.00	7.00	8.00	2.40	2.60
FSL500F-N	20.50	21.50	3.50	3.90	0.55	1.10	7.00	8.00	7.00	8.00	2.40	2.60
FSL700F-N	21.00	23.00	3.50	3.90	0.55	1.10	4.60	6.60	4.60	6.60	2.90	3.10

Physical specifications

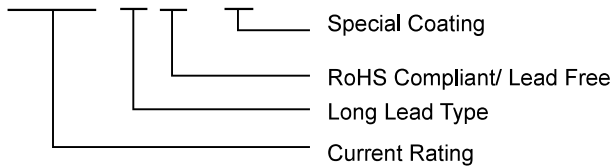
Lead material : 0.1 mm nominal thickness, quarter-hard nickel.

Insulating material : Epoxy.

***Remark : Polyester Tape is also available for this series.**

Part Numbering System

F S L □ □ □ (□ F) - N



Package Information

Part Number	Standard Package
FSL140F-N~FSL700F-N	500 Pcs/Bag

- Warning :**
- Operation beyond the specified maximum ratings or improper use may result in damage and possible electrical arcing and/or flame.
 - PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
 - Avoid contact of PPTC device with chemical solvent. Prolonged contact will damage the device performance.

