




### SMD Series



#### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E74889
	78165
	72161778 72161795

#### Description

The SMD series provides surface mount overcurrent protection for applications where space is at a premium and resettable protection is desired.

#### Features

- Broadest range of resettable devices available in industry
- Low resistance
- Small footprint - 2018, 2920 and 3425
- Fast time-to-trip
- RoHS compliant, lead-free and halogen-free

#### Applications

Mobile Electronics and Batteries

- Computer
- Portable electronics
- Multimedia
- Game machines
- Telephone and broadband
- Automotive
- Industrial controls
- Battery

#### Additional Information



Datasheet



Resources



Samples

#### Electrical Characteristics

Part Number	$I_H$	$I_T$	$V_{MAX}$	$I_{MAX}$	$P_{D MAX}$	Max Time-to-trip		$R_{MIN}$	$R_{1MAX}$
	(A)	(A)	(V <sub>DC</sub> )	(A)	(W)	(A)	(s)	(Ω)	(Ω)
<b>midSMD Series — Size 5050mm/2018mils</b>									
SMD030F-2018	0.30	0.80	60	20	1.50	1.50	1.50	0.500	2.30
SMD100F-2018	1.10	2.20	15	40	1.40	8.00	0.50	0.100	0.40
SMD150F-2018	1.50	3.00	15	40	1.80	8.00	1.00	0.070	0.18
SMD200F-2018	2.00	4.20	6	40	1.50	8.00	3.00	0.048	0.10
<b>SMD Series — Size 7555mm/2920mils</b>									
SMD030F	0.30	0.60	60	10	1.70	1.50	3.00	1.200	4.800
SMD050F	0.50	1.00	60	10	1.70	2.50	4.00	0.350	1.400
SMD075F	0.75	1.50	30	40	1.70	8.00	0.30	0.350	1.000
SMD075F/60	0.75	1.50	60	10	1.70	8.00	0.30	0.350	1.000

#### Notes:

- $I_H$  : Hold current: maximum current device will pass without interruption in 20°C still air.
- $I_T$  : Trip current: minimum current that will switch the device from low resistance to high resistance in 20°C still air.
- $V_{MAX}$  : Maximum continuous voltage device can withstand without damage at rated current.
- $I_{MAX}$  : Maximum fault current device can withstand without damage at rated voltage.
- $P_D$  : Power dissipated from device when in the tripped state in 20°C still air.
- $R_{MIN}$  : Minimum resistance of device as supplied at 20°C unless otherwise specified.
- $R_{1MAX}$  : Maximum resistance measured one hour post-trip or post-reflow at 20°C.

**Electrical Characteristics**

**(Cont'd)**

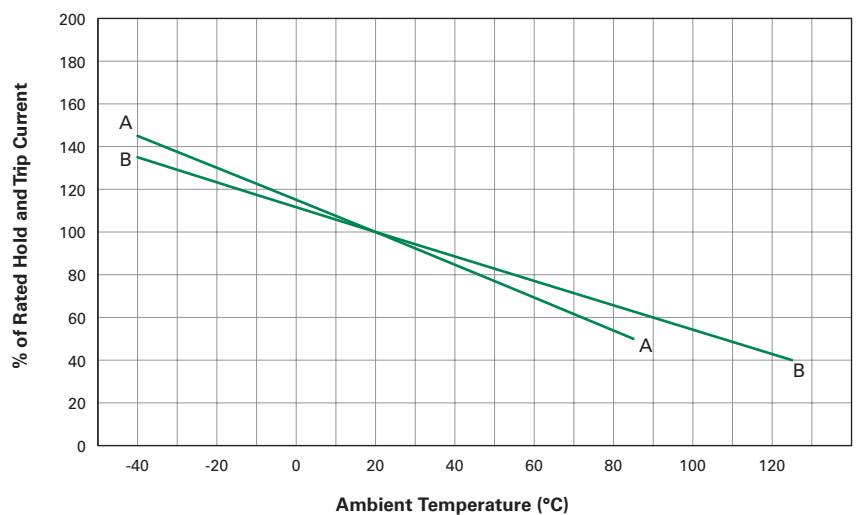
Part Number	$I_H$	$I_T$	$V_{MAX}$	$I_{MAX}$	$P_{D MAX}$	Max Time-to-trip		$R_{MIN}$	$R_{1MAX}$
	(A)	(A)	(V <sub>DC</sub> )	(A)	(W)	(A)	(s)	(Ω)	(Ω)
<b>SMD Series – Size 755mm/2920mils</b>									
SMD100F	1.10	2.20	30	40	1.70	8.00	0.50	0.120	0.480
SMD100F/33	1.10	2.20	33	40	1.70	8.00	0.50	0.120	0.410
SMDH120	1.20	2.30	16	50	2.00	8.00	2.00	0.150	0.340
SMD125F	1.25	2.50	15	40	1.70	8.00	2.00	0.070	0.250
SMD150F/33-2920	1.50	3.00	33	40	1.50	8.00	5.00	0.080	0.230
SMD200F/24-2920	2.00	4.00	24	40	1.50	8.00	5.00	0.050	0.125
SMD250F/15-2920	2.50	5.00	15	40	1.50	8.00	10.00	0.035	0.085
SMD260F	2.60	5.20	6	40	1.70	8.00	20.00	0.025	0.075
SMD300F	3.00	6.00	6	40	1.50	8.00	35.00	0.015	0.048
SMD300F/15	3.00	6.00	15	40	1.50	8.00	35.00	0.015	0.050
<b>SMD2 Series – Size 8763mm/3425mils</b>									
SMD150F	1.50	3.00	15	40	1.90	8.00	5.00	0.060	0.250
SMD150F/33	1.50	3.00	33	40	1.90	8.00	5.00	0.080	0.230
SMDH160	1.60	3.20	16	70	2.20	8.00	15.00	0.050	0.150
SMD185F	1.85	3.60	33	40	1.50	8.00	5.00	0.065	0.165
SMD200F	2.00	4.00	15	40	1.90	8.00	12.00	0.050	0.125
SMD250F	2.50	5.00	15	40	1.90	8.00	25.00	0.035	0.085

**Notes:**

- $I_H$  : Hold current: maximum current device will pass without interruption in 20°C still air.
- $I_T$  : Trip current: minimum current that will switch the device from low resistance to high resistance in 20°C still air.
- $V_{MAX}$  : Maximum continuous voltage device can withstand without damage at rated current.
- $I_{MAX}$  : Maximum fault current device can withstand without damage at rated voltage.
- $P_D$  : Power dissipated from device when in the tripped state in 20°C still air.
- $R_{MIN}$  : Minimum resistance of device as supplied at 20°C unless otherwise specified.
- $R_{1MAX}$  : Maximum resistance measured one hour post-trip or post-reflow at 20°C.

**Temperature Derating Curve**

- A = midSMD, SMD, SMD2**
- B = SMDH120, SMDH160**



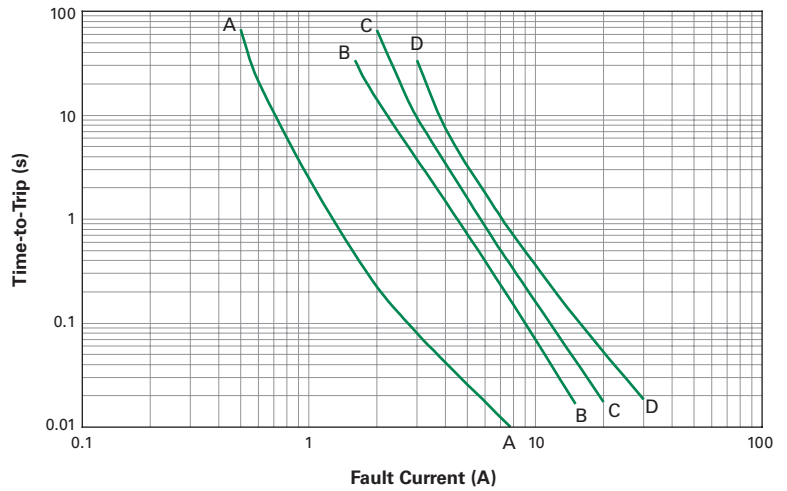
### Temperature Rerating

Maximum Ambient Temperature												
Part Number	-40°C	-20°C	0°C	20°C	25°C	40°C	50°C	60°C	70°C	80°C	85°C	125°C
Hold Current (A)												
midSMD Series – Size 5050mm/2018mils												
SMD030F-2018	0.48	0.42	0.35	0.30	0.28	0.24	0.21	0.17	0.15	0.12	0.10	—
SMD100F-2018	1.59	1.43	1.20	1.10	1.03	0.94	0.85	0.72	0.69	0.61	0.57	—
SMD150F-2018	2.21	1.97	1.70	1.50	1.43	1.26	1.15	1.00	0.91	0.79	0.73	—
SMD200F-2018	2.81	2.54	2.27	2.00	1.93	1.73	1.59	1.46	1.32	1.19	1.12	—
SMD Series – Size 7555mm/2920mils												
SMD030F	0.44	0.39	0.32	0.30	0.28	0.26	0.23	0.19	0.18	0.17	0.15	—
SMD050F	0.73	0.65	0.55	0.50	0.47	0.43	0.39	0.33	0.31	0.28	0.26	—
SMD075F	1.11	0.99	0.84	0.75	0.71	0.63	0.57	0.49	0.45	0.39	0.36	—
SMD075F/60	1.11	0.99	0.84	0.75	0.71	0.63	0.57	0.49	0.45	0.39	0.36	—
SMD100F	1.59	1.43	1.20	1.10	1.03	0.94	0.85	0.72	0.69	0.61	0.57	—
SMD100F/33	1.48	1.35	1.20	1.10	1.06	0.98	0.91	0.83	0.79	0.73	0.69	—
SMDH120	2.34	1.96	1.58	1.20	1.15	1.02	0.92	0.83	0.74	0.65	0.60	0.26
SMD125F	1.89	1.68	1.50	1.25	1.21	1.04	0.93	0.85	0.71	0.61	0.55	—
SMD150F/33-2920	2.27	2.01	1.76	1.50	1.44	1.25	1.12	0.99	0.86	0.74	0.67	—
SMD200F/24-2920	2.90	2.60	2.30	2.00	1.93	1.70	1.55	1.40	1.25	1.10	1.03	—
SMD250F/15-2920	3.65	3.25	2.80	2.50	2.33	2.02	1.82	1.60	1.41	1.20	1.11	—
SMD260F	3.82	3.41	2.90	2.60	2.45	2.19	1.99	1.70	1.58	1.38	1.28	—
SMD300F	4.13	3.75	3.30	3.00	2.87	2.62	2.43	2.25	2.00	1.87	1.78	—
SMD300F/15	4.20	3.80	3.30	3.00	2.90	2.62	2.43	2.25	2.00	1.87	1.78	—
SMD2 Series – Size 8763mm/3425mils												
SMD150F	2.30	2.04	1.80	1.50	1.45	1.23	1.10	0.99	0.83	0.70	0.63	—
SMD150F/33	2.30	2.04	1.80	1.50	1.45	1.23	1.10	0.99	0.83	0.70	0.63	—
SMDH160	2.14	1.96	1.78	1.60	1.56	1.42	1.33	1.24	1.15	1.06	1.02	0.44
SMD185F	2.54	2.29	2.20	1.85	1.80	1.55	1.43	1.31	1.19	1.06	1.00	—
SMD200F	3.01	2.67	2.30	2.00	1.90	1.66	1.50	1.30	1.16	0.99	0.91	—
SMD250F	3.72	3.31	2.80	2.50	2.35	2.09	1.89	1.60	1.48	1.28	1.18	—

Typical Time-to-Trip Curves at 20°C

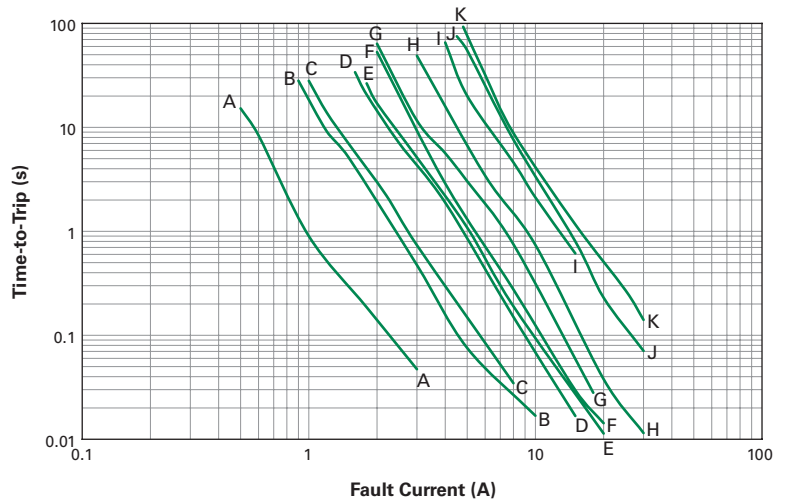
**midSMD**

- A = SMD030F-2018
- B = SMD100F-2018
- C = SMD150F-2018
- D = SMD200F-2018



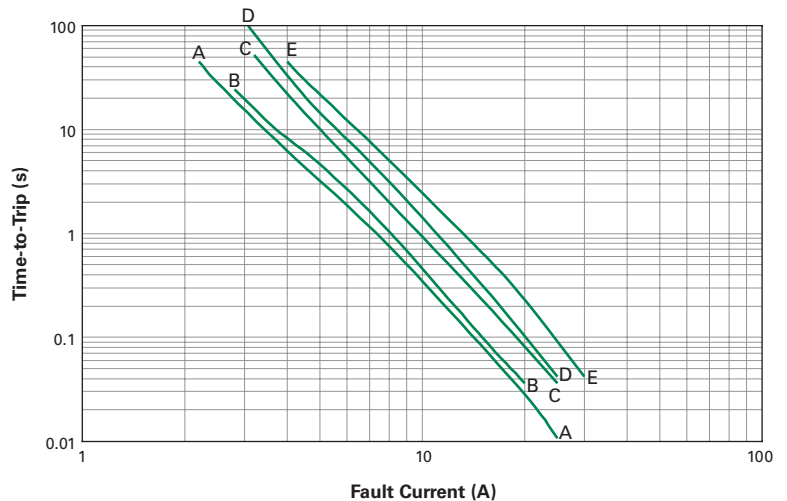
**SMDxxxF**

- A = SMD030F
- B = SMD050F
- C = SMD075F, SMD075F/60
- D = SMD100F, SMD100F/33
- E = SMDH120
- F = SMD150F/33-2920
- G = SMD125F
- H = SMD200F/24-2920
- I = SMD250F/15-2920
- J = SMD260F
- K = SMD300F, SMD300F/15



**SMD2xxxF**

- A = SMD150F, SMD150F/33
- B = SMDH160
- C = SMD185F
- D = SMD200F
- E = SMD250F



### Physical Specifications

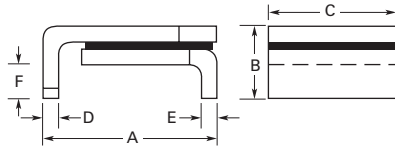
<b>Terminal Pad Material</b>	100% Matte Tin with Nickel Underplate
<b>Soldering Characteristics</b>	ANSI/J-STD-002 Category 3 (midSMD) ANSI/J-STD-002 Category 1 (SMD, SMD2)
<b>Solder Heat Withstand</b>	per IEC-STD 68-2-20, Test Tb, Section 5, Method 1a
<b>Flammability Resistance</b>	per IEC 695-2-2 Needle Flame Test for 20 seconds

### Environmental Specifications

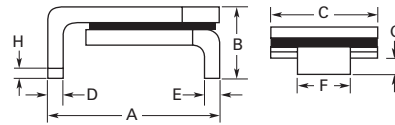
Test	Test Method	Conditions	Resistance Change
<b>Storage Life</b>	PS300, Section 5.3.2	60°C, 1000 hrs	±3% typ
		85°C, 1000 hrs	±3% typ
<b>Humidity Aging</b>	PS300, Section 5.3.1	85°C, 85% R.H., 100 hrs	±1.2% typ
<b>Thermal Shock</b>	MIL-STD-202, Method 107G	85°C, -40°C (20 Times)	-33% typ
		125°C, -55°C (10 Times)	-33% typ
<b>Vibration</b>	MIL-STD-883C	per MIL-STD-883C	No Change
<b>Solvent Resistance</b>	PS300, Section 5.2.2	Freon	No Change
		Trichloroethane	No Change
		Hydrocarbons	No Change

<b>Moisture Resistance Level</b>	Level 2a, J-STD-020
<b>Storage Conditions</b>	40°C max, 70% RH max; devices should remain in original sealed bags prior to use. Devices may not meet specified values if these storage conditions are exceeded.

**Dimension Figures**



**Figure 1**

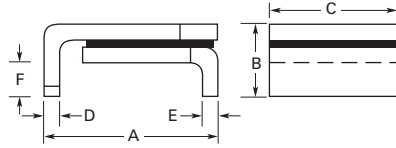


**Figure 2**

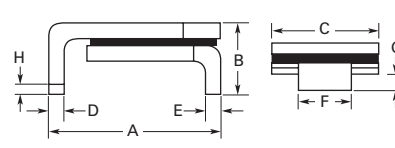
**Dimensions**

Part Number	Dimensions in Millimeters (Inches)															Figure
	A		B		C		D		E		F		G		H	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
<b>midSMD Series – Size 5050mm/2018mils</b>																
SMD030F-2018	4.72 (0.186)	5.44 (0.214)	—	1.78 (0.070)	4.22 (0.166)	4.93 (0.194)	0.25 (0.010)	0.36 (0.014)	0.25 (0.010)	0.36 (0.014)	0.30 (0.012)	0.46 (0.018)	—	—	—	1
SMD100F-2018	4.72 (0.186)	5.44 (0.214)	—	1.52 (0.060)	4.22 (0.166)	4.93 (0.194)	0.25 (0.010)	0.36 (0.014)	0.25 (0.010)	0.36 (0.014)	0.30 (0.012)	0.46 (0.018)	—	—	—	1
SMD150F-2018	4.72 (0.186)	5.44 (0.214)	—	1.52 (0.060)	4.22 (0.166)	4.93 (0.194)	0.25 (0.010)	0.36 (0.014)	0.25 (0.010)	0.36 (0.014)	0.30 (0.012)	0.46 (0.018)	—	—	—	1
SMD200F-2018	4.72 (0.186)	5.44 (0.214)	—	1.52 (0.060)	4.22 (0.166)	4.93 (0.194)	0.25 (0.010)	0.36 (0.014)	0.25 (0.010)	0.36 (0.014)	0.30 (0.012)	0.46 (0.018)	—	—	—	1
<b>SMD Series – Size 7555mm/2920mils</b>																
SMD030F	6.73 (0.265)	7.98 (0.314)	—	3.18 (0.125)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD050F	6.73 (0.265)	7.98 (0.314)	—	3.18 (0.125)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD075F	6.73 (0.265)	7.98 (0.314)	—	3.18 (0.125)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD075F/60	6.73 (0.265)	7.98 (0.314)	—	3.18 (0.125)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD100F	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD100F/33	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMDH120	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD125F	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2

**Dimension Figures**



**Figure 1**



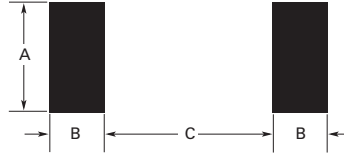
**Figure 2**

**Dimensions**

**(Cont'd)**

Part Number	Dimensions in Millimeters (Inches)															Figure
	A		B		C		D		E		F		G		H	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
<b>SMD Series — Size 7555mm/2920mils</b>																
SMD150F/33-2920	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD200F/24-2920	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD250F/15-2920	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD260F	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD300F	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD300F/15	6.73 (0.265)	7.98 (0.314)	—	3.00 (0.118)	4.80 (0.19)	5.44 (0.214)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	2.16 (0.085)	2.41 (0.095)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
<b>SMD2 Series — Size 8763mm/3425mils</b>																
SMD150F	8.00 (0.315)	9.40 (0.370)	—	3.00 (0.118)	6.00 (0.236)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD150F/33	8.00 (0.315)	9.40 (0.370)	—	3.00 (0.118)	6.00 (0.236)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMDH160	8.00 (0.315)	9.40 (0.370)	—	3.00 (0.118)	6.00 (0.236)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD185F	8.00 (0.315)	9.40 (0.370)	—	3.00 (0.118)	6.00 (0.236)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD200F	8.00 (0.315)	9.40 (0.370)	—	3.00 (0.118)	6.00 (0.236)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2
SMD250F	8.00 (0.315)	9.40 (0.370)	—	3.00 (0.118)	6.00 (0.236)	6.71 (0.264)	0.56 (0.022)	0.71 (0.028)	0.56 (0.022)	0.71 (0.028)	3.68 (0.145)	3.94 (0.155)	0.66 (0.026)	1.37 (0.054)	0.43 (0.017)	2

**Recommended Pad Layout**



**Packaging and Marking Information**

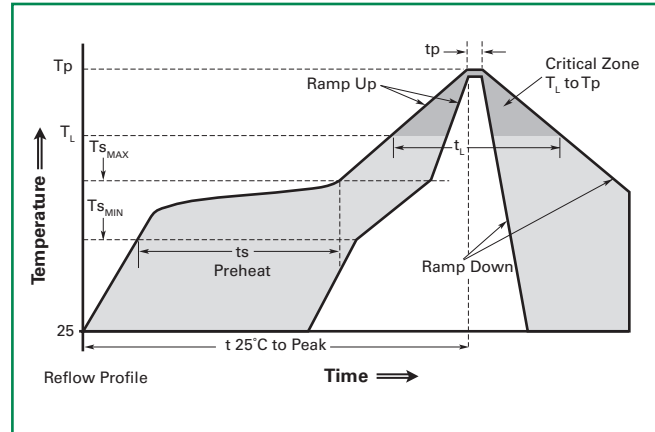
Part Number	Tape and Reel Quantity	Standard Package	Part Marking	Recommended Pad Layout Figures [mm (in)]			Agency Recognition
				Dimension A (Nom)	Dimension B (Nom)	Dimension C (Nom)	
<b>midSMD Series — Size 5050mm/2018mils</b>							
SMD030F-2018	4,000	20,000	A03F	4.60 (0.18)	1.50 (0.059)	3.40 (0.134)	UL, CSA, TÜV
SMD100F-2018	4,000	20,000	A10F	4.60 (0.18)	1.50 (0.059)	3.40 (0.134)	UL, CSA, TÜV
SMD150F-2018	4,000	20,000	A15F	4.60 (0.18)	1.50 (0.059)	3.40 (0.134)	UL, CSA, TÜV
SMD200F-2018	4,000	20,000	A20F	4.60 (0.18)	1.50 (0.059)	3.40 (0.134)	UL, CSA, TÜV
<b>SMD Series — Size 7555mm/2920mils</b>							
SMD030F	2,000	10,000	030F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD050F	2,000	10,000	050F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD075F	2,000	10,000	075F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD075F/60	2,000	10,000	756F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD100F	2,000	10,000	100F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD100F/33	2,000	10,000	103F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMDH120	2,000	10,000	H12	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD125F	2,000	10,000	125F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD150F/33-2920	2,000	10,000	S15F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD200F/24-2920	2,000	10,000	S20F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD250F/15-2920	2,000	10,000	S25F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD260F	2,000	10,000	260F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD300F	2,000	10,000	300F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
SMD300F/15	2,000	10,000	315F	3.10 (0.12)	2.30 (0.09)	5.10 (0.201)	UL, CSA, TÜV
<b>SMD2 Series — Size 8763mm/3425mils</b>							
SMD150F	1,500	7,500	150F	4.60 (0.18)	2.30 (0.09)	6.10 (0.240)	UL, CSA, TÜV
SMD150F/33	1,500	7,500	153F	4.60 (0.18)	2.30 (0.09)	6.10 (0.240)	UL, CSA, TÜV
SMDH160	1,500	7,500	160F	4.60 (0.18)	2.30 (0.09)	6.10 (0.240)	UL, CSA, TÜV
SMD185F	1,500	7,500	185F	4.60 (0.18)	2.30 (0.09)	6.10 (0.240)	UL, CSA, TÜV
SMD200F	1,500	7,500	200F	4.60 (0.18)	2.30 (0.09)	6.10 (0.240)	UL, CSA, TÜV
SMD250F	1,500	7,500	250F	4.60 (0.18)	2.30 (0.09)	6.10 (0.240)	UL, CSA, TÜV



**Solder Reflow Recommendations**

Profile Feature	Pb-Free Assembly
<b>Average ramp up rate (<math>T_{S\_MAX}</math> to <math>T_p</math>)</b>	3°C/s max
<b>Preheat</b>	
• Temperature min ( $T_{S\_MIN}$ )	150°C
• Temperature max ( $T_{S\_MAX}$ )	200°C
• Time ( $t_{S\_MIN}$ to $t_{S\_MAX}$ )	60-120 s
<b>Time maintained above:</b>	
• Temperature ( $T_L$ )	217°C
• Time ( $t_L$ )	60-150 s
<b>Peak/Classification temperature (<math>T_p</math>)</b>	260°C
<b>Time within 5°C of actual peak temperature</b>	
Time ( $t_p$ )	30 s max
<b>Ramp down rate</b>	3°C/s max
<b>Time 25°C to peak temperature</b>	8 min max

**Note:** All temperatures refer to topside of the package, measured on the package body surface.



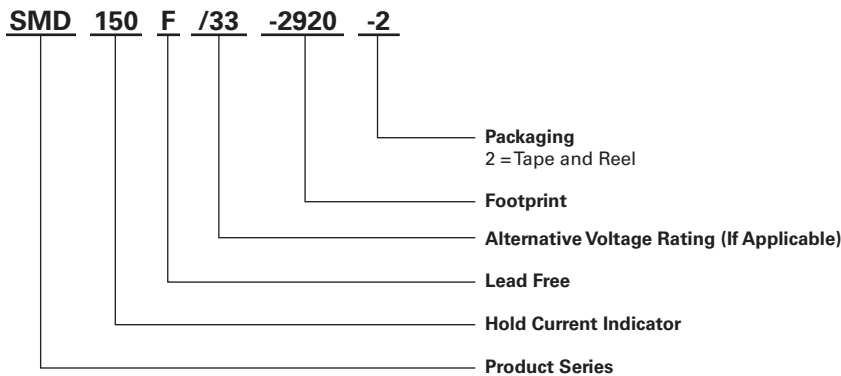
**Solder Reflow**

- Recommended reflow method: IR, hot air, nitrogen.
- Recommended maximum paste thickness: 0.25mm (0.010in)
- Devices can be cleaned using standard methods and aqueous solvents.
- Experience has shown the optimum conditions for forming acceptable solder fillets occur when a reasonable amount of solder paste is placed underneath each device's termination. As such, we request that customers comply with our recommended solder pad layouts.
- Customer should validate that the solder paste amount and reflow recommendations meet its application.
- We request that customer board layouts refrain from placing raised features (e.g. vias, nomenclature, traces, etc.) underneath PolySwitch devices. It is possible that raised features could negatively impact solderability performance of our devices.

**Rework**

- Standard industry practices. (Please also avoid direct contact to the device.)

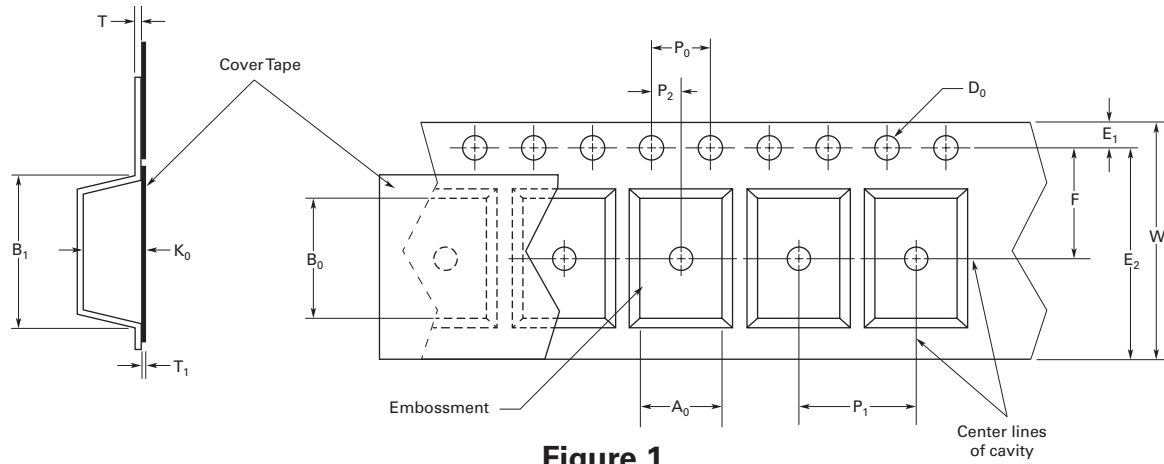
**Part Ordering Number System**



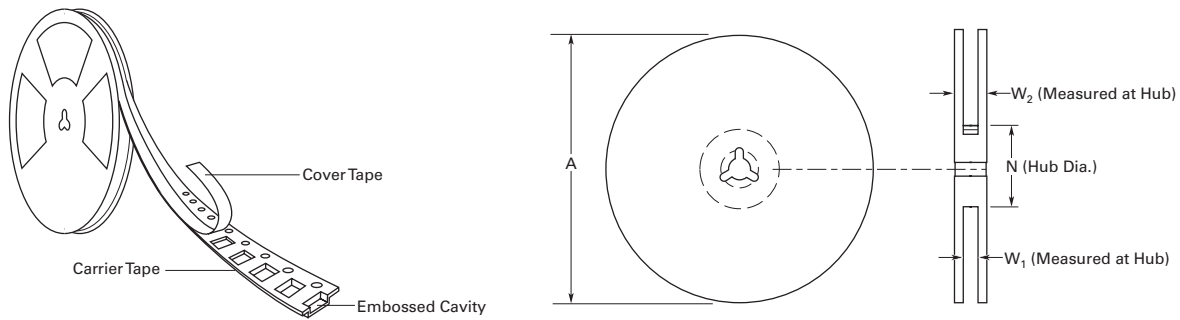
**Tape and Reel Specifications**

Description	midSMD EIA 481-2	SMD EIA 481-2		SMD2 EIA 481-2
	SMD030F-2018 SMD100F-2018 SMD150F-2018 SMD200F-2018	SMD030F SMD050F SMD075F SMD075F/60 SMD100F SMD100F/33 SMDH120	SMD125F SMD150F/33-2920 SMD200F/24-2920 SMD250F/15-2920 SMD260F SMD300F SMD300F/15	SMD150F SMD150F/33 SMDH160 SMD185F SMD200F SMD250F
<b>W</b>	16.0 ± 0.30	16.0 ± 0.30	16.0 ± 0.30	16.0 ± 0.30
<b>P<sub>0</sub></b>	4.0 ± 0.10	4.0 ± 0.10	4.0 ± 0.10	4.0 ± 0.10
<b>P<sub>1</sub></b>	8.0 ± 0.10	8.0 ± 0.10	8.0 ± 0.10	12.0 ± 0.10
<b>P<sub>2</sub></b>	2.0 ± 0.10	2.0 ± 0.10	2.0 ± 0.10	2.0 ± 0.10
<b>A<sub>0</sub></b>	5.11 ± 0.15	5.6 ± 0.23	5.6 ± 0.23	6.9 ± 0.23
<b>B<sub>0</sub></b>	5.6 ± 0.23	8.1 ± 0.15	8.1 ± 0.15	9.6 ± 0.15
<b>B<sub>1</sub> max</b>	6.4	12.1	12.1	12.1
<b>D<sub>0</sub></b>	1.5 + 0.10/-.00	1.5 + 0.10/-.00	1.5 + 0.10/-.00	1.5 + 0.10/-.00
<b>F</b>	7.50 ± 0.10	7.50 ± 0.10	7.50 ± 0.10	7.50 ± 0.10
<b>E<sub>1</sub></b>	1.75 ± 0.10	1.75 ± 0.10	1.75 ± 0.10	1.75 ± 0.10
<b>E<sub>2</sub> min</b>	14.25	14.25	14.25	14.25
<b>T max</b>	0.4	0.4	0.4	0.4
<b>T<sub>1</sub> max</b>	0.1	0.1	0.1	0.1
<b>K<sub>0</sub></b>	1.8 ± 0.15	3.2 ± 0.15	3.2 ± 0.15	3.4 ± 0.15
<b>A max</b>	330	330	330	330
<b>N min</b>	50	50	50	50
<b>W<sub>1</sub></b>	16.4 + 2.0/-.00	16.4 + 2.0/-.00	16.4 + 2.0/-.00	16.4 + 2.0/-.00
<b>W<sub>2</sub> max</b>	22.4	22.4	22.4	22.4

**Tape and Reel Diagrams**



**Figure 1**



**Figure 2**

**WARNING**

- Users should independently evaluate the suitability of and test each product selected for their own application.
- Operation beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- These devices are intended for protection against damage caused by occasional overcurrent or overtemperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Contamination of the PPTC material with certain silicone-based oils or some aggressive solvents can adversely impact the performance of the devices.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- PPTC devices are not recommended for installation in applications where the device is constrained such that its PTC properties are inhibited, for example in rigid potting materials or in rigid housings, which lack adequate clearance to accommodate device expansion.
- Operation in circuits with a large inductance can generate a circuit voltage ( $Ldi/dt$ ) above the rated voltage of the device.

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