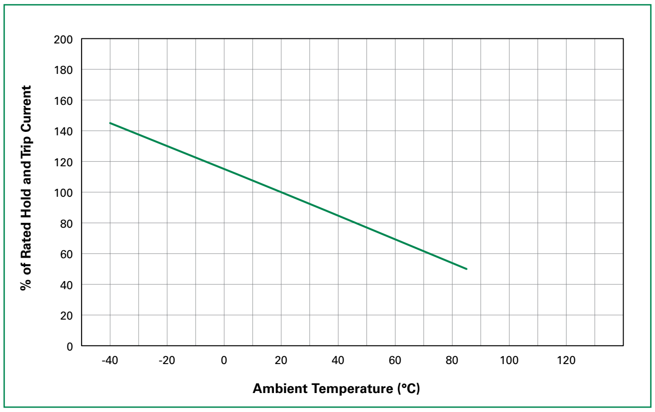
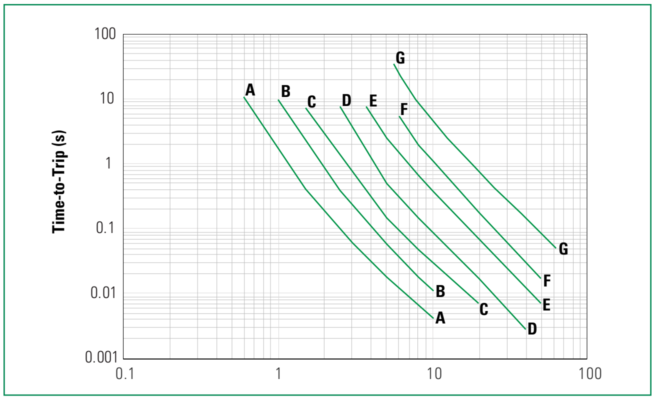
Temperature Rerating

	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
Hold Current (A)											
SMDC Series — Size 7555mm/2920mils											
SMDC030F	0.490	0.430	0.370	0.310	0.300	0.250	0.220	0.190	0.160	0.141	0.120
SMDC050F	0.860	0.750	0.650	0.540	0.500	0.430	0.370	0.320	0.260	0.224	0.180
SMDC075F	1.170	1.040	0.900	0.770	0.750	0.640	0.570	0.500	0.440	0.323	0.340
SMDC125F/33	2.02	1.78	1.55	1.31	1.25	1.08	0.96	0.84	0.72	0.60	0.54
SMDC185F/33	2.83	2.50	2.20	1.85	1.74	1.53	1.37	1.22	1.04	0.88	0.80
SMDC300F/24	4.70	4.19	3.70	3.17	3.00	2.66	2.41	2.20	1.90	1.65	1.50
SMDC310F/18	4.50	4.06	3.78	3.19	3.10	2.75	2.54	2.32	2.10	1.88	1.76

Temperature Rerating Curve



Typical Time-to-Trip Curves at 20°C



A = SMDC030F
B = SMDC050F
C = SMDC075F
D = SMDC125F/33
E = SMDC185F/33
F = SMDC300F/24
G = SMDC310F/18

Physical Specifications

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

Environmental Specifications

Test	Test Method	Conditions	Resistance Change
Storage Life	PS300, Section 5.3.2	60°C, 1000 hrs, 85°C, 1000 hrs	±3% typ, ±5% typ
Humidity Aging	PS300, Section 5.3.1	85°C, 85% R.H., 100 hrs	±1.2% typ
Thermal Shock	MIL-STD-202, Method 107G	85°C, -40°C (20 Times)	-33% typ
Vibration	MIL-STD-883C	per MIL-STD-883C	No Change
Solvent Resistance	PS300, Section 5.2.2	Freon, Trichloroethane, Hydrocarbons	No Change

Moisture Resistance Level	Level 2a, J-STD-020
Storage Conditions	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.

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Dimension Figures

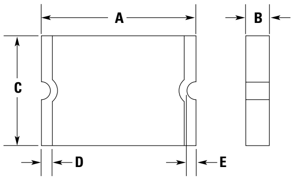


Figure 1

Dimensions

Part Number	Dimensions in Millimeters (Inches)										Figure
	A		B		C		D		E		
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
SMDC Series — Size 7555mm/2920mils											
SMDC030F	7.30 (0.287)	7.70 (0.303)	0.63 (0.025)	0.90 (0.035)	4.90 (0.193)	5.30 (0.209)	0.25 (0.010)	0.95 (0.040)	0.20 (0.008)	-	1
SMDC050F	7.30 (0.287)	7.70 (0.303)	0.63 (0.025)	0.90 (0.035)	4.90 (0.193)	5.30 (0.209)	0.25 (0.010)	0.95 (0.040)	0.20 (0.008)	-	1
SMDC075F	7.30 (0.287)	7.70 (0.303)	0.63 (0.025)	0.90 (0.035)	4.90 (0.193)	5.30 (0.209)	0.25 (0.010)	0.95 (0.040)	0.20 (0.008)	-	1
SMDC125F/33	7.30 (0.287)	7.70 (0.303)	0.45 (0.018)	0.71 (0.028)	4.90 (0.193)	5.30 (0.209)	0.25 (0.010)	0.95 (0.040)	0.20 (0.008)	—	1
SMDC185F/33	7.30 (0.287)	7.70 (0.303)	0.90 (0.035)	1.20 (0.047)	4.90 (0.193)	5.30 (0.209)	0.25 (0.010)	0.95 (0.040)	0.20 (0.008)	—	1
SMDC300F/24	7.30 (0.287)	7.70 (0.303)	0.80 (0.031)	1.10 (0.043)	4.90 (0.193)	5.30 (0.209)	0.25 (0.010)	0.95 (0.040)	0.20 (0.008)	—	1
SMDC310F/18	7.30 (0.287)	7.70 (0.303)	1.10 (0.043)	1.70 (0.067)	4.90 (0.193)	5.30 (0.209)	0.95 (0.037)	1.45 (0.057)	0.35 (0.014)	—	1

Recommended Pad Layout

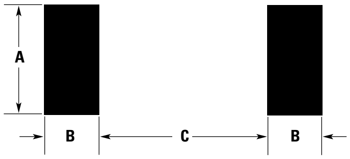
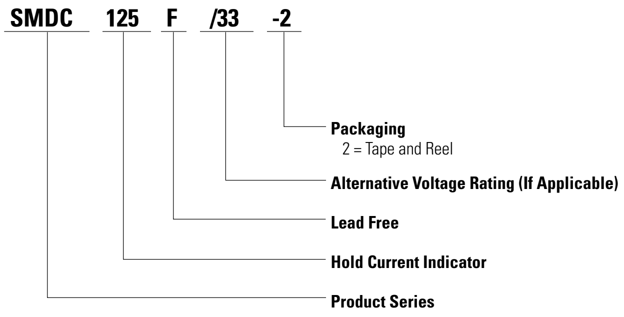


Figure 2

Recommended Pad Layout

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)	
SMDC Series — Size 7555mm/2920mils							
SMDC030F	4,000	20,000	030F	5.30 (0.209)	2.00 (0.079)	4.60 (0.18)	-
SMDC050F	4,000	20,000	050F	5.30 (0.209)	2.00 (0.079)	4.60 (0.18)	-
SMDC075F	4,000	20,000	075F	5.30 (0.209)	2.00 (0.079)	4.60 (0.18)	-
SMDC125F/33	4,000	20,000	125F	5.30 (0.209)	2.00 (0.079)	4.60 (0.18)	UL
SMDC185F/33	4,000	20,000	185F 33V	5.30 (0.209)	2.00 (0.079)	4.60 (0.18)	UL, CSA, TÜV
SMDC300F/24	4,000	20,000	300F 24V	5.30 (0.209)	2.00 (0.079)	4.60 (0.18)	UL, CSA, TÜV
SMDC310F/18	3,000	15,000	310F 18V	5.30 (0.209)	2.00 (0.079)	4.60 (0.18)	UL, CSA, TUV

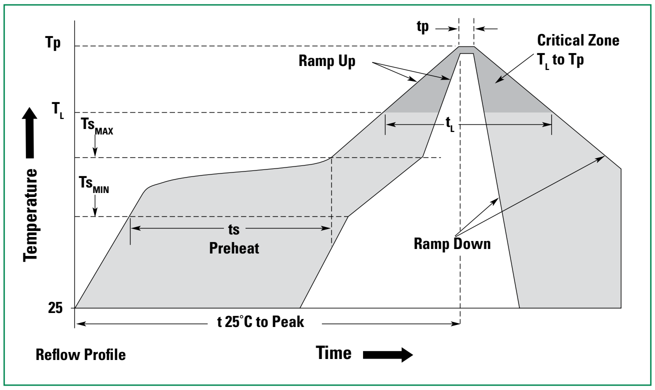
Part Ordering Number System



Solder Reflow Recommendations

Profile Feature	Pb-Free Assembly
Average ramp up rate (Ts_{MAX} to Tp)	3°C/s max
Preheat	-
• Temperature min (Ts_{MIN})	150°C
• Temperature max (Ts_{MAX})	200°C
• Time (ts_{MIN} to ts_{MAX})	60-120 s
Time maintained above:	-
• Temperature (T_L)	217°C
• Time (t_L)	60-150 s
Peak/Classification temperature (Tp)	260°C
Time within 5°C of actual peak temperature	-
Time (tp)	30 s max
Ramp down rate	3°C/s max
Time 25°C to peak temperature	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.)

Tape and Reel Specifications

Description	SMDC, EIA 481-1		
	SMDC030F, SMDC050F, SMDC075F, SMDC125F/33	SMDC185F/33, SMDC300F/24	SMDC310F/18
W	16.0 ± 0.30	16.0 ± 0.30	16.0 ± 0.30
P_0	4.0 ± 0.10	4.0 ± 0.10	4.0 ± 0.10
P_1	8.0 ± 0.10	8.0 ± 0.10	8.0 ± 0.10
P_2	2.0 ± 0.10	2.0 ± 0.10	2.0 ± 0.10
A_0	5.5 ± 0.1	5.35 ± 0.1	5.5 ± 0.1
B_0	7.9 ± 0.1	7.85 ± 0.1	8.0 ± 0.1
B_1 max	12.1	12.1	12.1
D_0	1.5 + 0.10/ -.00	1.5 + 0.10/ -.00	1.5 + 0.10/ -.00
F	7.50 ± 0.10	7.50 ± 0.10	7.50 ± 0.10
E_1	1.75 ± 0.10	1.75 ± 0.10	1.75 ± 0.10
E_2 min	14.25	14.25	14.25
T max	0.35	0.35	0.35
T_1 max	0.1	0.1	0.1
K_0	0.9 ± 0.1	1.45 ± 0.1	2.0 ± 0.1
A max	330	330	330
N min	50	50	50
W_1	16.4 + 2.0/-.00	16.4 + 2.0/-.00	16.4 + 2.0/-.00
W_2 max	22.4	22.4	22.4

Tape and Reel Diagrams

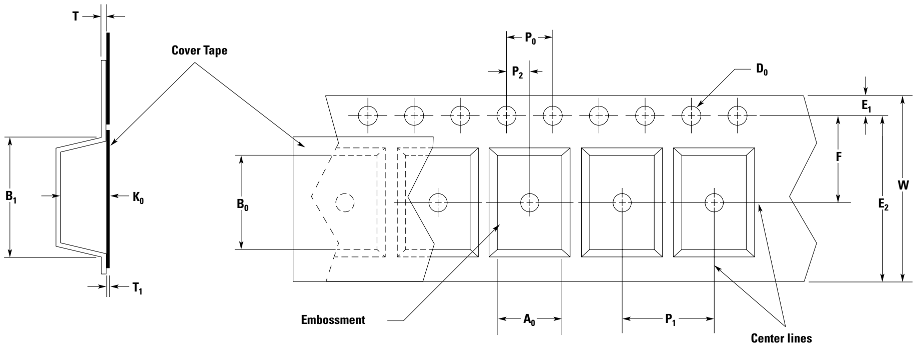


Figure 1

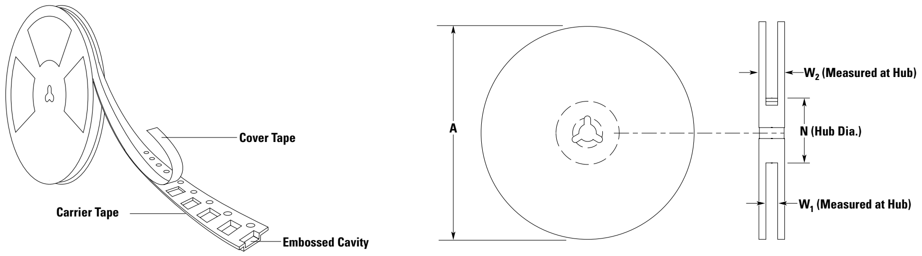


Figure 2

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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