

**Description**

The 2920 series provides surface mount resettable over-current protection with holding current from 0.3A to 7.0A. This series is suitable for applications with higher holding current and higher working voltage up to 60V.



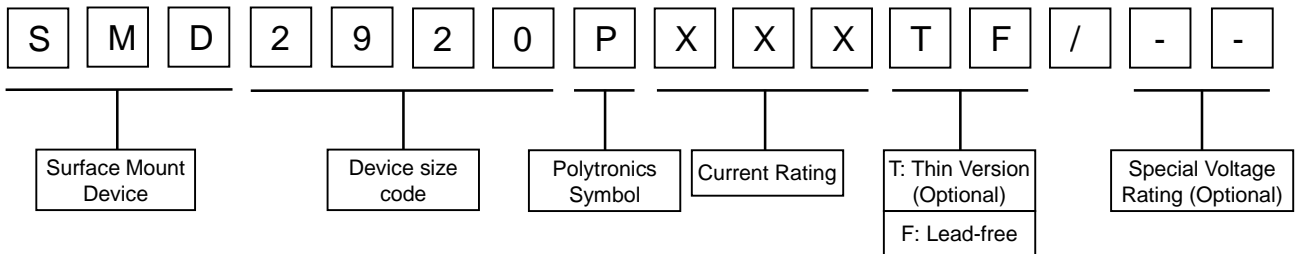
**Features**

- I I(hold): 0.3~7.0A
- I Very high voltage surge capabilities
- I Available in lead-free version
- I Fast response to fault current
- I RoHS compliant, Lead- Free and Halogen-Free
- I Low resistance
- I Compact design saves board space
- I Compatible with high temperature solders

**Applications**

- I USB peripherals
- I Disk drives
- I CD-ROMs
- I General electronics
- I Disk drives
- I Set-top-box and HDMI
- I Mobile Internet Device (MID)
- I PDAs / digital cameras
- I Game console port protection
- I Plug and play protection for motherboards and peripherals
- I Mobile phones - battery and port protection

**Part Number Code**



**Environmental Specifications**

Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs	±5% typical
Humidity aging	+85°C, 85%R.H., 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20times	±33% typical
Resistance to solvent	MIL-STD-202, Method 215	No change
Vibration	MIL-STD-202, Method 201	No change

Ambient operating conditions : - 40 °C to +85 °C

Maximum surface temperature of the device in the tripped state is 125 °C



**Performance Specification**

Type Number	$I_{hold}$	$I_{trip}$	$V_{max}$	Max. Time to Trip		$I_{max}$	$P_{d\ typ}$	$R_{i\ min}$	$R_{1\ max}$	Package
	A	A	$V_{DC}$	Current A	$T_{max}$ S	A	W	$\Omega$	$\Omega$	
SMD2920P030TF	0.3	0.6	60	1.5	3	10	1.5	0.6	4.8	2920
SMD2920P050TF	0.5	1	60	2.5	4	10	1.5	0.18	1.4	2920
SMD2920P075TF	0.75	1.5	33	8	0.3	40	1.5	0.1	1	2920
SMD2920P075TF/60	0.75	1.5	60	8	0.3	40	1.5	0.1	1	2920
SMD2920P100TF	1.1	2.2	33	8	0.5	40	1.5	0.065	0.41	2920
SMD2920P100TF/60	1.1	2.2	60	8	0.5	40	1.5	0.065	0.41	2920
SMD2920P125TF	1.25	2.5	33	8	2	40	1.5	0.05	0.25	2920
SMD2920P150TF	1.5	3	33	8	2	40	1.5	0.035	0.23	2920
SMD2920P185TF	1.85	3.7	33	8	2.5	40	1.5	0.03	0.15	2920
SMD2920P200TF	2	4	16	8	4.5	40	1.5	0.02	0.12	2920
SMD2920P200TF/24	2	4	24	8	4.5	40	1.5	0.02	0.12	2920
SMD2920P200TF/33	2	4	33	8	4.5	40	1.5	0.02	0.12	2920
SMD2920P250TF	2.5	5	16	8	16	40	1.5	0.02	0.085	2920
SMD2920P250TF/24	2.5	5	24	8	16	40	1.5	0.02	0.085	2920
SMD2920P250TF/30	2.5	5	30	8	16	40	1.5	0.02	0.085	2920
SMD2920P260TF	2.6	5.2	6	8	10	40	1.5	0.014	0.075	2920
SMD2920P260TF/16	2.6	5.2	16	8	10	40	1.5	0.014	0.075	2920
SMD2920P260TF/33	2.6	5.2	33	8	10	40	1.5	0.014	0.075	2920
SMD2920P300TF	3	6	6	8	20	40	1.5	0.012	0.048	2920
SMD2920P300TF/16	3	6	16	8	20	40	1.5	0.012	0.048	2920
SMD2920P300TF/24	3	6	24	8	20	40	1.5	0.012	0.048	2920
SMD2920P300TF/33	3	6	33	8	20	40	1.5	0.012	0.048	2920
SMD2920P400TF	4	8	6	20	4.0	40	1.5	0.008	0.04	2920
SMD2920P400TF/16	4	8	16	20	4.0	40	1.5	0.008	0.04	2920
SMD2920P400TF/24	4	8	24	20	4.0	40	1.5	0.008	0.04	2920
SMD2920P500TF	5	10	6	25	5.0	40	1.5	0.005	0.031	2920
SMD2920P500TF/12	5	10	12	25	5.0	40	1.5	0.005	0.031	2920
SMD2920P500TF/16	5	10	16	25	5.0	40	1.5	0.005	0.031	2920
SMD2920P600TF	6	12	6	25	6.0	40	1.5	0.004	0.02	2920
SMD2920P600TF/12	6	12	12	25	6.0	40	1.5	0.004	0.02	2920
SMD2920P700TF	7	14	6	25	6.0	40	1.5	0.0025	0.01	2920
SMD2920P700TF/12	7	14	12	25	6.0	40	1.5	0.0025	0.01	2920

$I_{hold}$  = Hold current: maximum current device will pass without tripping in 25°C still air.

$I_{trip}$  = Trip current: minimum current at which the device will trip in 25 °C still air.

$V_{max}$  = Maximum voltage device can withstand without damage at rated current ( $I_{max}$ )

$I_{max}$  = Maximum fault current device can withstand without damage at rated voltage ( $V_{max}$ )

$P_{d\ typ}$  = Typical power dissipated from device when in the tripped state at 25 °C still air.

$R_{i\ min/max}$  = Minimum/Maximum device resistance prior to tripping at 25°C.

$R_{1\ max}$  = Maximum device resistance is measured one hour post reflow.

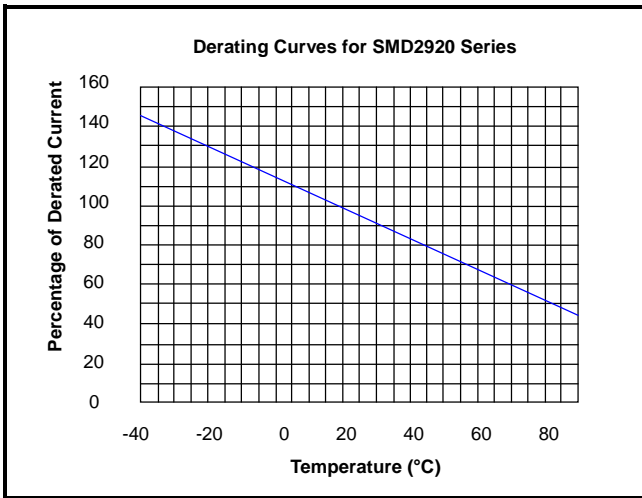


**Thermal Derating Chart-Ih(A)**

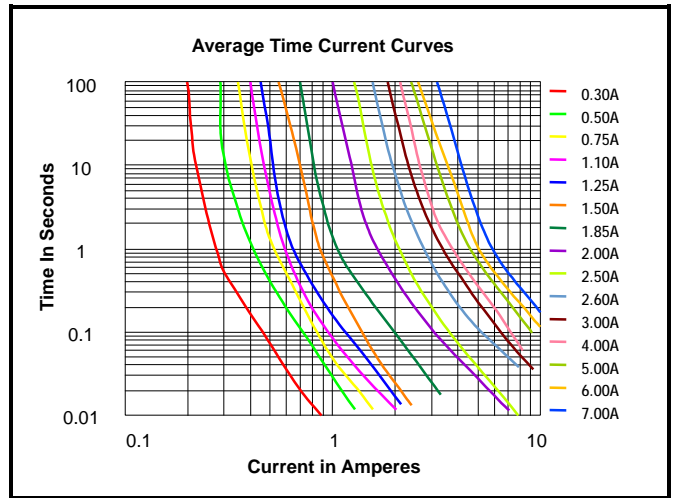
Part Number	Ambient Operation Temperature								
	-40 °C	-20 °C	0 °C	25 °C	40 °C	50 °C	60 °C	70 °C	85 °C
SMD2920P030TF	0.45	0.40	0.35	0.30	0.25	0.23	0.20	0.17	0.14
SMD2920P050TF	0.76	0.67	0.59	0.50	0.42	0.38	0.33	0.29	0.23
SMD2920P075TF	1.13	1.01	0.88	0.75	0.62	0.56	0.50	0.44	0.34
SMD2920P075TF/60	1.13	1.01	0.88	0.75	0.62	0.56	0.50	0.44	0.34
SMD2920P100TF	1.66	1.47	1.29	1.10	0.91	0.83	0.73	0.64	0.50
SMD2920P100TF/60	1.66	1.47	1.29	1.10	0.91	0.83	0.73	0.64	0.50
SMD2920P125TF	1.89	1.68	1.46	1.25	1.04	0.94	0.83	0.73	0.56
SMD2920P150TF	2.27	2.01	1.76	1.50	1.25	1.13	1.00	0.87	0.74
SMD2920P185TF	2.80	2.47	2.17	1.85	1.54	1.39	1.22	1.07	0.85
SMD2920P200TF	3.02	2.68	2.34	2.00	1.66	1.50	1.32	1.16	0.90
SMD2920P200TF/24	3.02	2.68	2.34	2.00	1.66	1.50	1.32	1.16	0.90
SMD2920P200TF/33	3.02	2.68	2.34	2.00	1.66	1.50	1.32	1.16	0.90
SMD2920P250TF	3.78	3.35	2.93	2.50	2.08	1.88	1.65	1.45	1.13
SMD2920P250TF/24	3.78	3.35	2.93	2.50	2.08	1.88	1.65	1.45	1.13
SMD2920P250TF/30	3.78	3.35	2.93	2.50	2.08	1.88	1.65	1.45	1.13
SMD2920P260TF	3.64	3.25	2.91	2.60	2.26	2.08	1.95	1.74	1.13
SMD2920P260TF/16	3.64	3.25	2.91	2.60	2.26	2.08	1.95	1.74	1.13
SMD2920P260TF/33	3.64	3.25	2.91	2.60	2.26	2.08	1.95	1.74	1.13
SMD2920P300TF	4.53	4.02	3.51	3.00	2.52	2.26	1.99	1.75	1.34
SMD2920P300TF/16	4.53	4.02	3.51	3.00	2.52	2.26	1.99	1.75	1.34
SMD2920P300TF/24	4.53	4.02	3.51	3.00	2.52	2.26	1.99	1.75	1.34
SMD2920P300TF/33	4.53	4.02	3.51	3.00	2.52	2.26	1.99	1.75	1.34
SMD2920P400TF	6.04	5.36	4.68	4.00	3.36	3.01	2.65	2.33	1.79
SMD2920P400TF/16	6.04	5.36	4.68	4.00	3.36	3.01	2.65	2.33	1.79
SMD2920P400TF/24	6.04	5.36	4.68	4.00	3.36	3.01	2.65	2.33	1.79
SMD2920P500TF	7.55	6.70	5.85	5.00	4.20	3.77	3.32	2.92	2.23
SMD2920P500TF/12	7.55	6.70	5.85	5.00	4.20	3.77	3.32	2.92	2.23
SMD2920P500TF/16	7.55	6.70	5.85	5.00	4.20	3.77	3.32	2.92	2.23
SMD2920P600TF	8.60	7.70	6.80	6.00	4.95	4.60	4.06	3.65	3.15
SMD2920P600TF/12	8.60	7.70	6.80	6.00	4.95	4.60	4.06	3.65	3.15
SMD2920P700TF	10.03	8.98	7.93	7.00	5.77	5.36	4.73	4.26	3.68
SMD2920P700TF/12	10.03	8.98	7.93	7.00	5.77	5.36	4.73	4.26	3.68



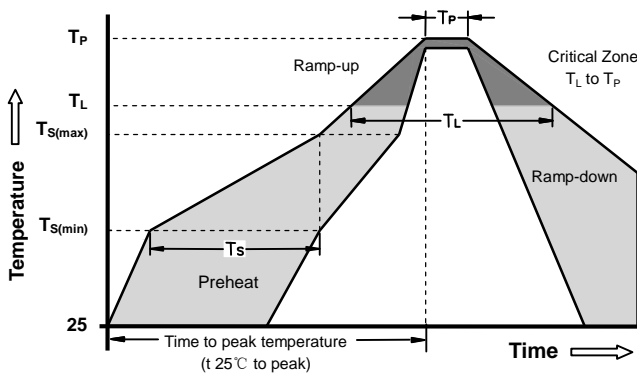
**Thermal Derating Curve**



**Average Time-Current Curve**



**Soldering Parameters**



Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 -180 Seconds
Average ramp up rate ( Liquids Temp $T_L$ to peak)		3°C/second max
$T_{S(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquids)	217°C
	- Time (min to max) ( $t_s$ )	60 -150 Seconds
Peak Temperature ( $T_P$ )		260 +0/-5°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 - 40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_P$ )		8 minutes Max
Do not exceed		260°C

Lead style code	Recommended Pad Layout (mm.)

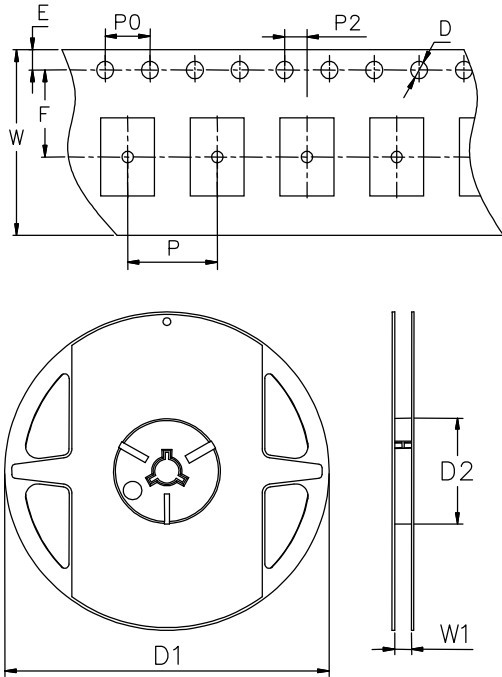


**Dimensions**

Type Number	Package Dimensions (mm)							Package Dimensions (in)						
	A		B		C		D	A		B		C		D
	min	max	min	max	min	max	min	min	max	min	max	min	max	min
SMD2920P030TF	6.73	7.98	4.8	5.44	0.6	1.2	0.3	0.265	0.314	0.189	0.214	0.024	0.047	0.012
SMD2920P050TF	6.73	7.98	4.8	5.44	0.8	1.6	0.3	0.265	0.314	0.189	0.214	0.031	0.063	0.012
SMD2920P075TF	6.73	7.98	4.8	5.44	0.7	1.3	0.3	0.265	0.314	0.189	0.214	0.028	0.051	0.012
SMD2920P075TF/60	6.73	7.98	4.8	5.44	0.8	1.6	0.3	0.265	0.314	0.189	0.214	0.031	0.063	0.012
SMD2920P100TF	6.73	7.98	4.8	5.44	0.4	1.0	0.3	0.265	0.314	0.189	0.214	0.016	0.039	0.012
SMD2920P100TF/60	6.73	7.98	4.8	5.44	1.0	2.1	0.3	0.265	0.314	0.189	0.214	0.039	0.083	0.012
SMD2920P125TF	6.73	7.98	4.8	5.44	0.4	1.0	0.3	0.265	0.314	0.189	0.214	0.016	0.039	0.012
SMD2920P150TF	6.73	7.98	4.8	5.44	0.5	1.3	0.3	0.265	0.314	0.189	0.214	0.02	0.051	0.012
SMD2920P185TF	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P200TF	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P200TF/24	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P200TF/33	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P250TF	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P250TF/24	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P250TF/30	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P260TF	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P260TF/16	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P260TF/33	6.73	7.98	4.8	5.44	0.7	1.4	0.3	0.265	0.314	0.189	0.214	0.028	0.055	0.012
SMD2920P300TF	6.73	7.98	4.8	5.44	0.6	1.2	0.3	0.265	0.314	0.189	0.214	0.024	0.047	0.012
SMD2920P300TF/16	6.73	7.98	4.8	5.44	0.6	1.2	0.3	0.265	0.314	0.189	0.214	0.024	0.047	0.012
SMD2920P300TF/24	6.73	7.98	4.8	5.44	0.6	1.2	0.3	0.265	0.314	0.189	0.214	0.024	0.047	0.012
SMD2920P300TF/33	6.73	7.98	4.8	5.44	0.6	1.2	0.3	0.265	0.314	0.189	0.214	0.024	0.047	0.012
SMD2920P400TF	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P400TF/16	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P400TF/24	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P500TF	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P500TF/12	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P500TF/16	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P600TF	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P600TF/12	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P700TF	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012
SMD2920P700TF/12	6.73	7.98	4.8	5.44	1	1.6	0.3	0.265	0.314	0.189	0.214	0.039	0.063	0.012



**Taping and Reel Specifications**



Symbol	Millimeters	Inches
W	16.0±0.3	0.63±0.012
P	8.0±0.1	0.315±0.004
F	7.5±0.05	0.295±0.002
E	1.75±0.1	0.069±0.004
D	1.55±0.05	0.061±0.002
P0	4.0±0.1	0.157±0.004
P2	2.0±0.05	0.079±0.002
D1(max.)	178.0	7.007
D2(min.)	60	2.362
W1	16.4±0.5	0.646±0.02

Part Number	Halogen Free	Packaging Option	Quantity	Quantity & Packaging Codes
SMD2920PxxxTF	Yes	Tape and Reel	1500	YR



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