

## FEATURES

- | I(hold): 0.05~4.5A
- | Very high voltage surge capabilities
- | Available in lead-free version
- | Fast response to fault current
- | RoHS compliant, Lead- Free and Halogen-Free
- | Low resistance
- | Compact design saves board space
- | Compatible with high temperature solders



## APPLICATIONS

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>  USB peripherals</li> <li>  Disk drives</li> <li>  CD-ROMs</li> <li>  General electronics</li> <li>  Set-top-box and HDMI</li> </ul> | <ul style="list-style-type: none"> <li>  Mobile Internet Device (MID)</li> <li>  PDAs / digital cameras</li> <li>  Game console port protection</li> <li>  Plug and play protection for peripherals</li> <li>  Mobile phones - battery and port protection</li> </ul> |
|--|---|

## ENVIRONMENTAL SPECIFICATIONS

Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs	±5% typica
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		$I_{max}$	$P_{dtyp}$	$Ri_{min}$	$R1_{max}$
	A	A	$V_{DC}$	Current (A)	$T_{max}$ (S)	A	W	$\Omega$	$\Omega$
SMD1206-005	0.05	0.15	60	0.25	1.50	10	0.4	3.60	50
SMD1206-010	0.10	0.25	60	0.50	1.00	10	0.4	1.60	15
SMD1206-010/33	0.10	0.25	33	0.50	1.00	10	0.4	1.60	15
SMD1206-012	0.12	0.29	60	0.50	1.00	10	0.4	1.60	15
SMD1206-012/48	0.12	0.29	48	0.50	1.00	10	0.4	1.60	15
SMD1206-016	0.16	0.37	16	1.00	0.30	10	0.4	1.00	6
SMD1206-016/24	0.16	0.37	24	1.00	0.30	10	0.4	1.00	6
SMD1206-016/33	0.16	0.37	33	1.00	0.30	10	0.4	1.00	6
SMD1206-020	0.20	0.46	24	8.00	0.08	10	0.6	0.35	2.7
SMD1206-020/30	0.20	0.46	30	8.00	0.08	10	0.6	0.35	2.7
SMD1206-025	0.25	0.50	16	8.00	0.08	10	0.6	0.35	2.5
SMD1206-025/24	0.25	0.50	24	8.00	0.08	10	0.6	0.35	2.5
SMD1206-025/30	0.25	0.50	30	8.00	0.08	10	0.6	0.35	2.5
SMD1206-035	0.35	0.75	6	8.00	0.10	35	0.6	0.25	1.3
SMD1206-035/16	0.35	0.75	16	8.00	0.10	35	0.6	0.25	1.3
SMD1206-035/30	0.35	0.75	30	8.00	0.10	35	0.6	0.25	1.3
SMD1206-050	0.50	1.00	6	8.00	0.10	35	0.6	0.15	0.7
SMD1206-050/13.2	0.50	1.00	13.2	8.00	0.10	35	0.6	0.15	0.7
SMD1206-050/16	0.50	1.00	16	8.00	0.10	35	0.6	0.15	0.7
SMD1206-050/24	0.50	1.00	24	8.00	0.10	35	0.6	0.15	0.7
SMD1206-050/30	0.50	1.00	30	8.00	0.10	35	0.6	0.15	0.7
SMD1206-075	0.75	1.50	6	8.00	0.20	35	0.6	0.09	0.5
SMD1206-075/13.2	0.75	1.50	13.2	8.00	0.20	35	0.6	0.09	0.5
SMD1206-075/16	0.75	1.50	16	8.00	0.20	35	0.6	0.09	0.5
SMD1206-075/24	0.75	1.50	24	8.00	0.20	35	0.6	0.09	0.5
SMD1206-075/30	0.75	1.50	30	8.00	0.20	35	0.6	0.09	0.5
SMD1206-100	1.00	1.80	6	8.00	0.30	35	0.6	0.05	0.27
SMD1206-100/16	1.00	1.80	16	8.00	0.30	35	0.6	0.05	0.27
SMD1206-100/24	1.00	1.80	24	8.00	0.30	35	0.6	0.05	0.27
SMD1206-110	1.10	2.20	6	8.00	0.30	35	0.6	0.04	0.25
SMD1206-110/16	1.10	2.20	16	8.00	0.30	35	0.6	0.04	0.25
SMD1206-110/24	1.10	2.20	24	8.00	0.30	35	0.6	0.04	0.25
SMD1206-150	1.50	3.00	6	8.00	0.30	35	0.8	0.025	0.13
SMD1206-150/13.2	1.50	3.00	13.2	8.00	0.30	35	0.8	0.025	0.13
SMD1206-150/16	1.50	3.00	16	8.00	0.30	35	0.8	0.025	0.13
SMD1206-200	2.00	3.50	6	8.00	1.50	35	0.8	0.015	0.08
SMD1206-200/12	2.00	3.50	12	8.00	1.50	35	0.8	0.015	0.08
SMD1206-250	2.50	5.00	6	8.00	2.00	35	0.8	0.01	0.06
SMD1206-260	2.60	5.20	6	8.00	2.00	35	0.8	0.01	0.06
SMD1206-260/12	2.60	5.20	12	8.00	2.00	35	0.8	0.01	0.06
SMD1206-300	3.00	6	6	8.00	4.00	35	1.0	0.01	0.05
SMD1206-350	3.50	7	6	10.00	5.00	35	1.2	0.005	0.04
SMD1206-450	4.50	9	6	22.50	2.00	50	1.0	0.004	0.012

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

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

$I_{hold}$  = Hold Current. Maximum current device will not trip in 25°C still air.

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

$P_d$  = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

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

$R1_{max}$  = Maximum device resistance is measured one hour post reflow.

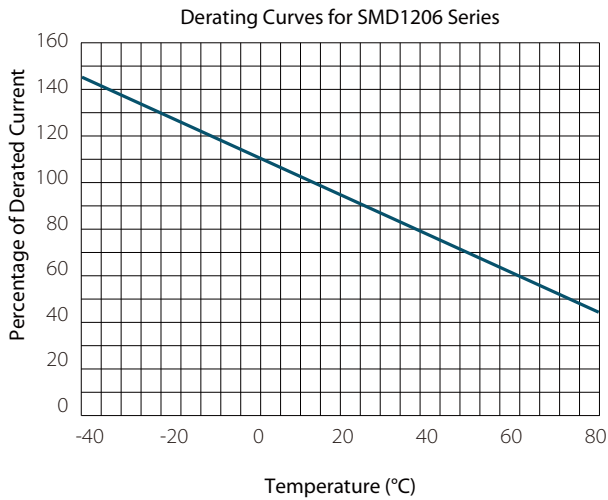
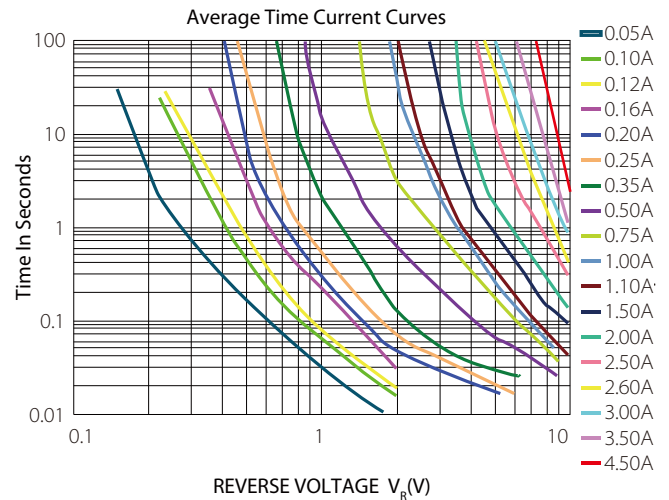
## THERMAL DERATING CHART-IH(A)

Part Number	Ambient Operation Temperature								
	-40 °C	-20 °C	0 °C	25 °C	40 °C	50 °C	60 °C	70 °C	85 °C
SMD1206-005	0.074	0.066	0.058	0.05	0.0425	0.0375	0.035	0.03	0.0275
SMD1206-010	0.148	1.32	0.116	0.10	0.085	0.075	0.07	0.06	0.055
SMD1206-010/33	0.148	1.32	0.116	0.10	0.085	0.075	0.07	0.06	0.055
SMD1206-012	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.07
SMD1206-012/48	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.07
SMD1206-016	0.24	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.10
SMD1206-016/24	0.24	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.10
SMD1206-016/33	0.24	0.21	0.18	0.16	0.14	0.13	0.12	0.11	0.10
SMD1206-020	0.30	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.11
SMD1206-020/30	0.30	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.11
SMD1206-025	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
SMD1206-025/24	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
SMD1206-025/30	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
SMD1206-035	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
SMD1206-035/16	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
SMD1206-035/30	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
SMD1206-050	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
SMD1206-050/13.2	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
SMD1206-050/16	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
SMD1206-050/24	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
SMD1206-050/30	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
SMD1206-075	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
SMD1206-075/13.2	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
SMD1206-075/16	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
SMD1206-075/24	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
SMD1206-075/30	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
SMD1206-100	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
SMD1206-100/16	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
SMD1206-100/24	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
SMD1206-110	1.60	1.45	1.30	1.10	0.95	0.80	0.72	0.66	0.55
SMD1206-110/16	1.60	1.45	1.30	1.10	0.95	0.80	0.72	0.66	0.55
SMD1206-110/24	1.60	1.45	1.30	1.10	0.95	0.80	0.72	0.66	0.55
SMD1206-150	2.18	1.94	1.72	1.50	1.28	1.17	1.06	0.96	0.77
SMD1206-150/13.2	2.18	1.94	1.72	1.50	1.28	1.17	1.06	0.96	0.77
SMD1206-150/16	2.18	1.94	1.72	1.50	1.28	1.17	1.06	0.96	0.77
SMD1206-200	2.88	2.63	2.34	2.00	1.74	1.58	1.42	1.17	0.93
SMD1206-200/12	2.88	2.63	2.34	2.00	1.74	1.58	1.42	1.17	0.93
SMD1206-250	3.30	3.10	2.82	2.50	2.16	1.98	1.83	1.54	1.33
SMD1206-260	3.43	3.22	2.93	2.60	2.23	2.03	1.87	1.57	1.35
SMD1206-260/12	3.43	3.22	2.93	2.60	2.23	2.03	1.87	1.57	1.35
SMD1206-300	4.05	3.66	3.36	3.00	2.50	2.28	2.00	1.62	1.35
SMD1206-350	4.65	4.23	3.92	3.50	2.92	2.68	2.35	1.91	1.42
SMD1206-450	4.85	5.92	5.47	4.50	3.73	3.34	3.00	2.35	1.55

## DIMENSIONS

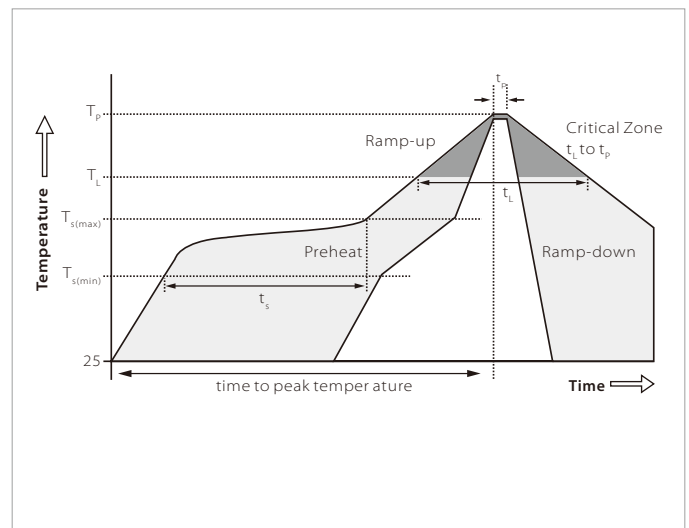
Type Number	Package Dimensions (mm)							Package Dimensions (in)						
	A		B		C		D	A		B		C		D
	min	max	min	max	min	max	min	min	max	min	max	min	max	min
SMD1206-005	3	3.6	1.5	1.9	0.6	1.2	0.15	0.118	0.142	0.059	0.075	0.024	0.047	0.004
SMD1206-010	3	3.6	1.5	1.9	0.6	1.2	0.15	0.118	0.142	0.059	0.075	0.024	0.047	0.004
SMD1206-010/33	3	3.6	1.5	1.9	0.6	1.2	0.15	0.118	0.142	0.059	0.075	0.024	0.047	0.004
SMD1206-012	3	3.6	1.5	1.9	0.6	1.2	0.15	0.118	0.142	0.059	0.075	0.024	0.047	0.004
SMD1206-012/48	3	3.6	1.5	1.9	0.6	1.2	0.15	0.118	0.142	0.059	0.075	0.024	0.047	0.004
SMD1206-016	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-016/24	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-016/33	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-020	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-020/30	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-025	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-025/24	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-025/30	3	3.6	1.5	1.9	0.4	1.0	0.15	0.118	0.142	0.059	0.075	0.016	0.039	0.004
SMD1206-035	3	3.6	1.5	1.9	0.35	0.8	0.15	0.118	0.142	0.059	0.075	0.014	0.031	0.004
SMD1206-035/16	3	3.6	1.5	1.9	0.35	0.8	0.15	0.118	0.142	0.059	0.075	0.014	0.031	0.004
SMD1206-035/30	3	3.6	1.5	1.9	0.40	0.9	0.15	0.118	0.142	0.059	0.075	0.016	0.035	0.004
SMD1206-050	3	3.6	1.5	1.9	0.35	0.8	0.15	0.118	0.142	0.059	0.075	0.014	0.031	0.004
SMD1206-050/13.2	3	3.6	1.5	1.9	0.35	0.8	0.15	0.118	0.142	0.059	0.075	0.014	0.031	0.004
SMD1206-050/16	3	3.6	1.5	1.9	0.35	0.8	0.15	0.118	0.142	0.059	0.075	0.014	0.031	0.004
SMD1206-050/24	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-050/30	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-075	3	3.6	1.5	1.9	0.35	0.8	0.15	0.118	0.142	0.059	0.075	0.014	0.031	0.004
SMD1206-075/13.2	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-075/16	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-075/24	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-075/30	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-100	3	3.6	1.5	1.9	0.35	0.8	0.15	0.118	0.142	0.059	0.075	0.014	0.031	0.004
SMD1206-100/16	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-100/24	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-150	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-150/13.2	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-150/16	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-200	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-200/12	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-250	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-260	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-260/12	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-300	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-350	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004
SMD1206-450	3	3.6	1.5	1.9	0.50	1.0	0.15	0.118	0.142	0.059	0.075	0.020	0.039	0.004

## PARAMETER CHARACTERISTIC CURVE

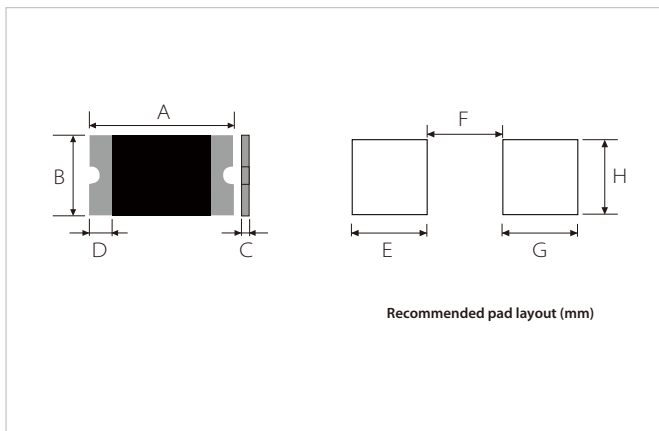
**FIG.1: Thermal Derating Curve**

**FIG.2: Average Time-Current Curve**


## REFLOW PROFILE

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time(min to max)	60-180 secs
Average ramp up rate (Liquidus)Temp ( $T_L$ ) to peak		3°C/second max
$T_s$ (max)to $T_L$ - Ramp-up Rate		
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Temperature ( $T_L$ )	60-150 seconds
Peak Temperature ( $T_p$ )		260+0/-5 °C
Time within 5°C of actual peak Temperature (tp)		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

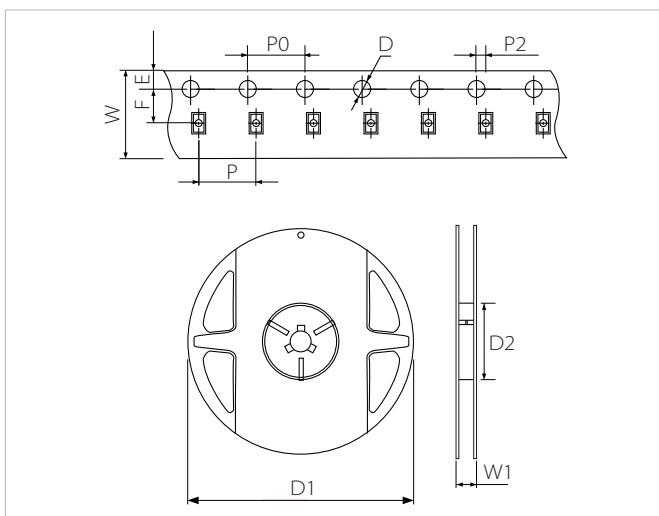


## PACKAGE MECHANICAL DATA



Ref.	Dimensions	
	Millimeters	
A	See Dimensions Table	
B		
C		
D		
E	1.0	
F	2.0	
G	1.0	
H	2.0	

## TAPING AND REEL SPECIFICATIONS



Symbol	Dimensions	
	Millimeters	Inches
W	8.15±0.3	0.321±0.012
P	4.0±0.1	0.157±0.004
P0	4.0±0.1	0.157±0.004
P2	2.0±0.05	0.079±0.002
F	3.5±0.05	0.138±0.002
E	1.75±0.1	0.069±0.004
D	1.55±0.05	0.061±0.002
D1(max)	178	7.007
D2(min)	60	2.362
W1	9.0±0.5	0.354±0.02

## ORDERING INFORMATION

Part Number	QTY/Reel	Reel Size
SMD1206-016 ,020,020/30, 025,035,035/16, 050,075,100,110	5000PCS	7"
Other	3500PCS	

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