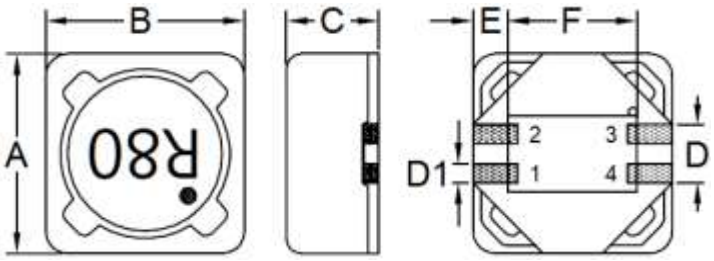
1. Part No. Expression

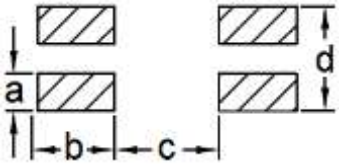
S P B 0 7 0 4 R 8 0 Y Z F

(a) (b) (c) (d) (e) (f)

(a) Series Code
(b) Dimension Code
(c) Inductance Code
(d) Tolerance Code
(e) Special Code
(f) Packaging Code

2. Configuration & Dimensions (Unit: mm)



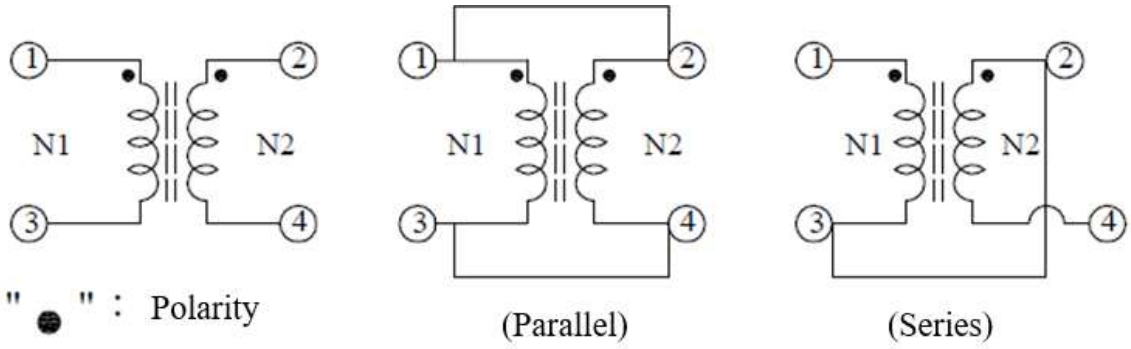


Recommended PCB Layout

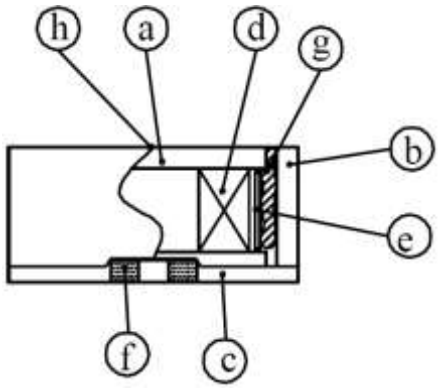
Note: 1. The above PCB layout reference only.
2. Marking: White dot(on pin ① side), Inductance Code

A	B	C	D	D1	E
7.30±0.20	7.30±0.20	4.45 Max	2.70 Ref	0.70 Ref	1.25 Ref
F	a	b	c	d	-
4.50 Ref	0.90 Ref	1.45 Ref	4.30 Ref	2.90 Ref	-

3. Schematic



4. Material List



(a) Core
(b) Core
(c) Base
(d) Wire
(e) Tape
(f) Terminal
(g) Adhesive
(h) Ink

5. General Specifications

(a) Operating Temp.: -40°C to +125°C (including self-temperature rise)
(b) Storage Temp.: -40°C to +125°C (on board)
(c) All test data referenced to 25°C ambient.
(d) Heat Rated Current (Irms) will cause the coil temperature rise approximately ΔT of 40°C.
(e) Saturation Current (Isat) will cause inductance L0 to drop approximately 30%.
(f) Rated Current: The lower value of Isat and Irms.
(g) Resistance to Solder Heat: 260°C, 10Sec.
(h) Storage Condition (Component in its packaging)
  i) Temperature: Less than 40°C
  ii) Humidity: Less than 60% RH

NOTE: Specifications subject to change without notice. Please check our website for latest information.

6. Electrical Characteristics

Part Number	Inductance (uH) Ref @0.25V/100KHz	Parallel				Series			
		Inductance (uH) Ref	RDC (Ω) Max	Isat (A)	Irms (A)	Inductance (uH) Ref	RDC (Ω) Max	Isat (A)	Irms (A)
SPB0704R80YZF	0.80	0.752	0.0132	10.20	5.33	3.008	0.0528	5.10	2.660
SPB07041R5YZF	1.50	1.422	0.0188	7.00	4.96	5.688	0.0752	3.80	2.480
SPB07042R2YZF	2.20	1.986	0.0204	6.60	4.66	7.944	0.0816	3.38	2.330
SPB07043R3YZF	3.30	3.396	0.0258	5.20	3.94	13.580	0.1032	2.50	1.970
SPB07044R7YZF	4.70	5.182	0.0354	4.37	3.34	20.730	0.1416	2.15	1.670
SPB07046R8YZF	6.80	7.344	0.0492	3.50	2.60	29.380	0.1968	1.75	1.300
SPB07048R2YZF	8.20	8.566	0.0564	3.20	2.53	34.260	0.2256	1.58	1.270
SPB0704100MZF	10.0	9.882	0.0606	3.05	2.41	39.530	0.2424	1.50	1.200
SPB0704150MZF	15.0	16.090	0.0948	2.40	2.00	64.360	0.3792	1.20	1.000
SPB0704220MZF	22.0	21.730	0.1272	1.95	1.75	86.920	0.5088	1.02	0.874
SPB0704330MZF	33.0	33.010	0.2052	1.60	1.30	132.000	0.8208	0.81	0.650
SPB0704470MZF	47.0	49.640	0.2940	1.32	1.05	198.600	1.1760	0.67	0.525
SPB0704680MZF	68.0	69.670	0.4056	1.18	0.95	278.700	1.6224	0.59	0.475
SPB0704820MZF	82.0	80.950	0.4920	1.09	0.83	323.800	1.9680	0.55	0.415
SPB0704101MZF	100.0	101.600	0.5736	0.96	0.75	406.400	2.2944	0.48	0.375
SPB0704151MZF	150.0	150.000	0.8352	0.78	0.60	600.000	3.3408	0.39	0.300
SPB0704221MZF	220.0	227.000	1.2192	0.65	0.50	908.000	4.8768	0.32	0.250
SPB0704331MZF	330.0	335.600	2.1720	0.53	0.40	1342.000	8.688	0.25	0.200
SPB0704471MZF	470.0	465.300	2.6520	0.46	0.35	1861.000	10.608	0.22	0.175
SPB0704681MZF	680.0	671.200	4.2480	0.37	0.28	2685.000	16.992	0.175	0.140
SPB0704821MZF	820.0	812.700	4.6680	0.35	0.26	3251.000	18.672	0.17	0.130
SPB0704102MZF	1000.0	1009.000	5.1840	0.31	0.24	4036.000	20.736	0.16	0.120

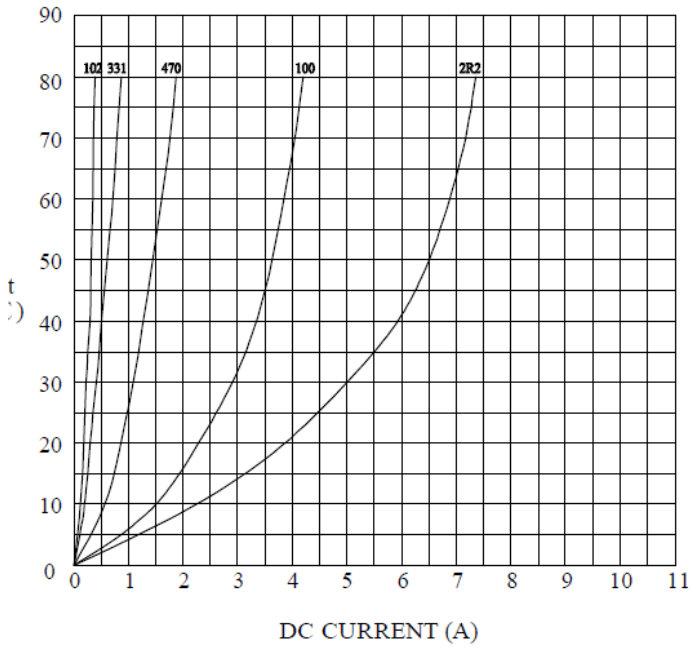
Note:

Tolerance Code: M=±20%, Y=±30%

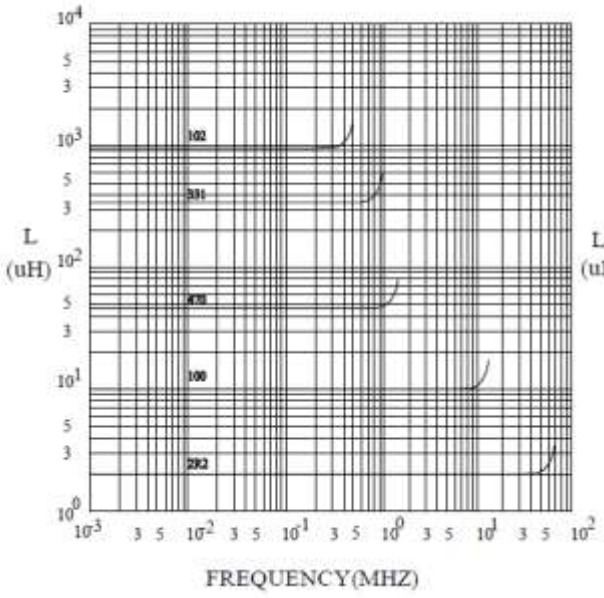
7. Characteristics Curves

7-1. Parallel

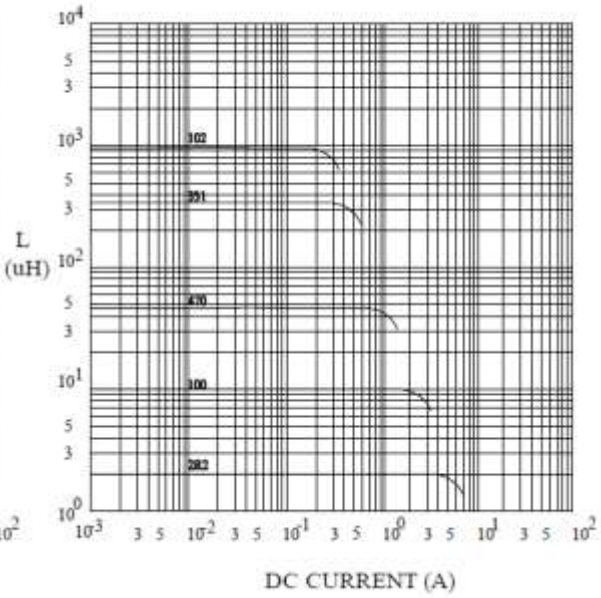
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



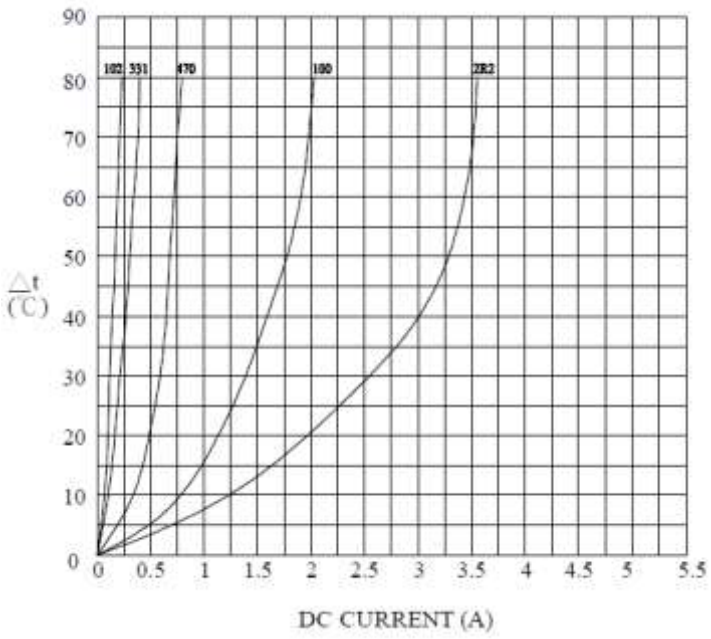
@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE



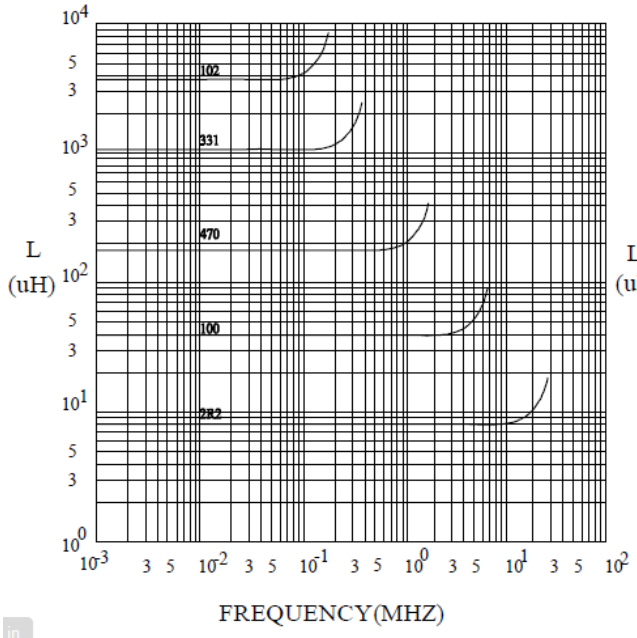
NOTE: Specifications subject to change without notice. Please check our website for latest information.

7-2. Series

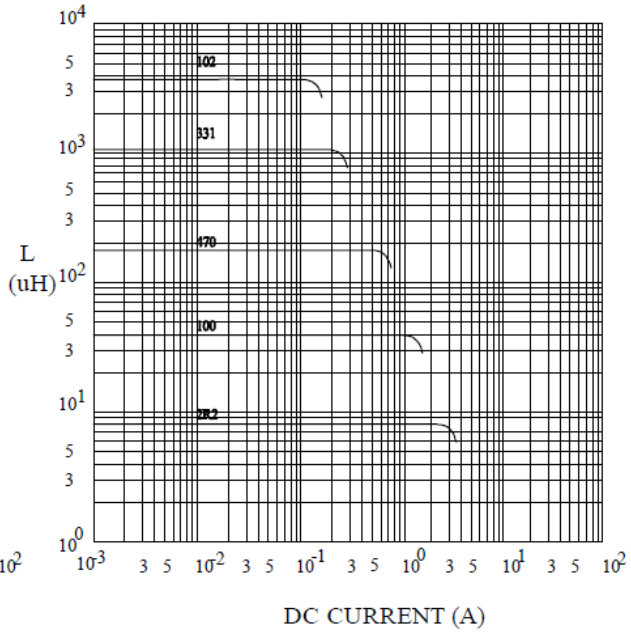
@ TEMP. RISE VS. DC SUPERPOSITION RESPONSE CURVE



@ INDUCTANCE VS. FREQUENCY RESPONSE CURVE



@ INDUCTANCE VS. DC SUPERPOSITION RESPONSE CURVE



NOTE: Specifications subject to change without notice. Please check our website for latest information.

8. Soldering Specification

Mildly activated rosin fluxes are preferred. Our terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

8-1. IR Soldering Reflow

Recommended temperature profiles for lead free re-flow soldering in Figure 1, Table 1.1 & 1.2 (J-STD-020F).

8-2. Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended (Figure 2).

Note:

(a) Preheat circuit and products to 150°C.

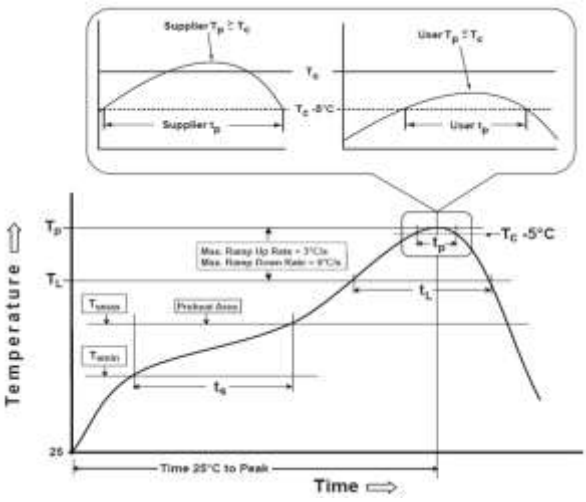
(b) 350°C tip temperature (Max.)

(c) Never contact the ceramic with the iron tip

(d) 1.0mm tip diameter (Max.)

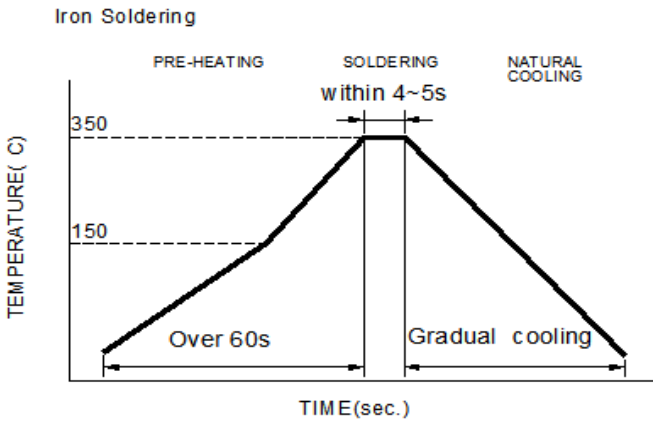
(e) Use a 20 watt soldering iron with tip diameter of 1.0mm

(f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max

Figure 1: IR Soldering Reflow



Iron Soldering times：1 times max

Figure 2: Iron soldering temperature profiles

NOTE: Specifications subject to change without notice. Please check our website for latest information.

Table (1.1) Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min (T_{smin}) -Temperature Max (T_{smax}) -Time (t_s) from (T_{smin} to T_{smax})	 150°C 200°C 60-120seconds
Ramp-up rate ($T_L$to T_p)	3°C /second max.
Liquids temperature (T_L) Time (t_L) maintained above T_L	217°C 60-150 seconds
Classification temperature (T_c)	See Table (1.2)
Time (t_p) at Tc- 5°C (Tp should be equal to or less than Tc.)	< 30 seconds
Ramp-down rate (T_p to T_L)	6°C /second max.
Time 25°C to peak temperature	8 minutes max.

Tp: maximum peak package body temperature, **Tc**: the classification temperature.

For user (customer) **Tp** should be equal to or less than **Tc.**

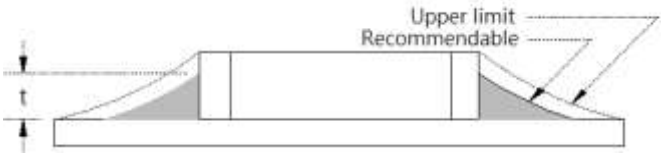
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

Reflow is referred to standard IPC/JEDEC J-STD-020F.

8-3. Soldering Volume

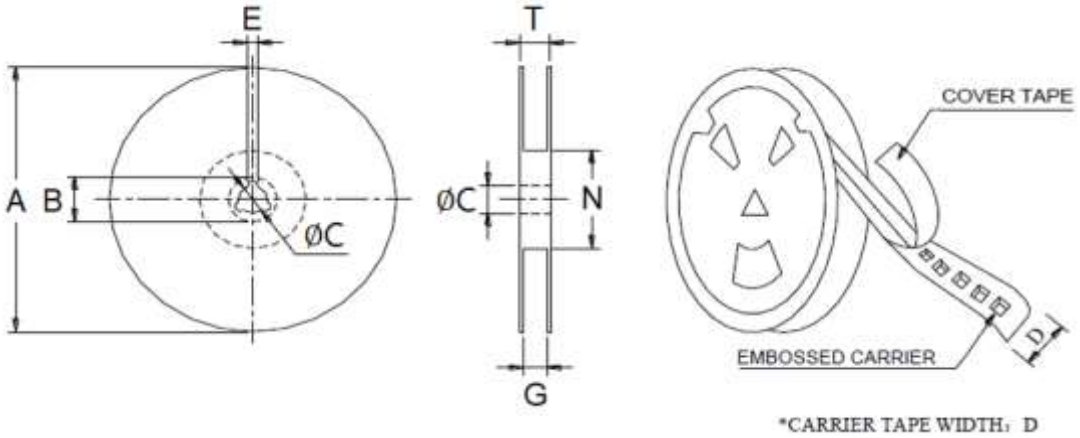
Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceeded as shown in the Figure below. Minimum fillet height = soldering thickness + 25% product height.



NOTE: Specifications subject to change without notice. Please check our website for latest information.

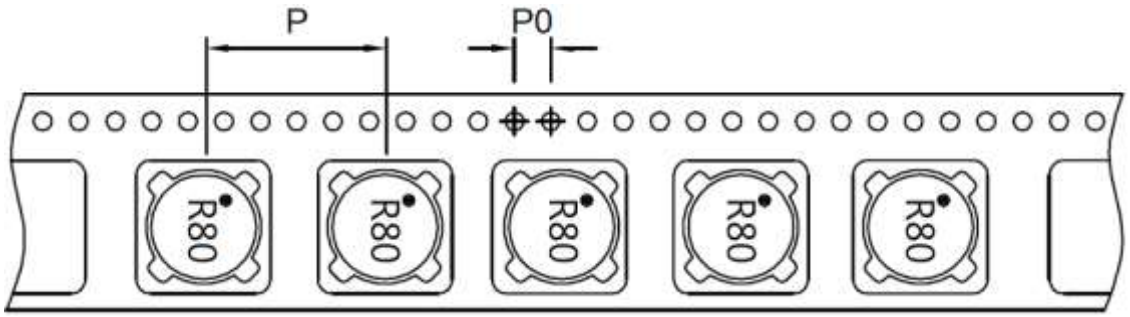
9. Packaging Information

9-1. Reel Dimension (Unit: mm)



Type	A	B	C	D	G	N	T
13”x16mm	330.0 Ref	21.0 Ref	13.0 Ref	16.0 Ref	18.0 Max	50.0 Min	22.4 Ref

9-2. Tape Dimension (Unit: mm)



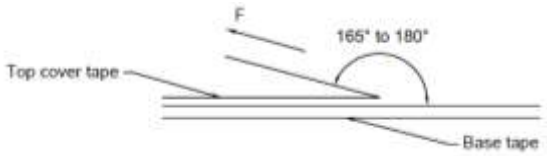
P	P0
12	4

NOTE: Specifications subject to change without notice. Please check our website for latest information.

9-3. Packaging Quantity (Unit: Pcs)

Inner: Reel			Outer: Carton		
Qty (pcs)	G.W (gw)	Style	Qty (pcs)	G.W (kg)	Size (cm)
1,000	717	13-16	6,000	7.9	38 x 36.5 x21

9-4. Tearing Off Force



The force for tearing off cover tape is according to the follow table, in the arrow direction under the following conditions.
(Referenced ANSI/EIA-481-D-2008 of 4.11 standard)

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300±10

Tape Size	8 mm	12 to 56 mm	72 mm or Wider
Tearing Off Force (grams)	10~100	10~130	10~150

Application Notice

1. Storage Conditions

To maintain the solderability of terminal electrodes:

(a) Products meet IPC/JEDEC J-STD-020F standard-MSL, level 1.

(b) Recommended products should be used within 12 months from the time of delivery.

(c) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation

(a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.

(b) Vacuum pick up is strongly recommended for individual components.

(c) Bulk handling should ensure that abrasion and mechanical shock are minimized.