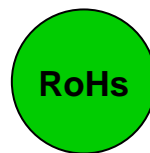


# SPECIFICATION FOR APPROVAL



CUSTOMER \_\_\_\_\_

CUSTOMER'S DWG NO. \_\_\_\_\_

REVISION NO. \_\_\_\_\_

CUSTOMER'S PART NO. \_\_\_\_\_

TECSTAR'S PART NO. \_\_\_\_\_

TL201209-R33K

QUANTITY \_\_\_\_\_

PCS \_\_\_\_\_

ITEM \_\_\_\_\_

DATE \_\_\_\_\_

SEP/03/2009

	“√”	CUSTOMER'S SIGNATURE	NOTE
FULL APPROVED			
CONDITONAL APPROVED			
REJECTED			



## TECSTAR TECHNOLOGY CO., LTD.

NO. 820-1 Kou Shih Rd. Yang Mei Chen  
Taoyuan Hsien, Taiwan, R.O.C.  
TEL : 886-3-4788701  
FAX : 886-3-4788702  
www tecstar.com.tw

# SPECIFICATION FOR APPROVAL

CUSTOMER:				CUSTOMER'S P/N:			
VENDOR'S P/N:				TL201209-R33K			
<p>DIMENSION:(m/m)</p>				A	2.0 ± 0.2	m/m	
				B	1.2 ± 0.2	m/m	
				C	0.9 ± 0.2	m/m	
				D	0.5 ± 0.3	m/m	
				E		m/m	
				F		m/m	
				G		m/m	
				H		m/m	
				I		m/m	
				J		m/m	
				K		m/m	
				L		m/m	
				M		m/m	
				N		m/m	
O		m/m					
<b>ELECTRICAL REQUIREMENTS</b>				<b>TEST INSTRUMENTS</b>			
L	330 ± 10%	nH	TEST FREQ.	<input checked="" type="radio"/> HP 4338A MILLIOHMMETER <input type="radio"/> HP 4195A NETWORK/SPECTRUM ANALYZER <input type="radio"/> HP 4284A BIAS CURRENT SOURCE <input type="radio"/> HP 4285A PRECISION LCR METER <input type="radio"/> HP 4286A PRECISION LCR METER <input checked="" type="radio"/> HP 4291B RF IMPEDANCE /MATERIAL ANALYZER <input type="radio"/> HP 6632A DC POWER SUPPLY			
Q	20	MIN.	TEST FREQ.				
Srf	145	MHz	TEST FREQ.				
Rdc	0.55	OHM.	TEST FREQ.				
Idc	250	mA	TEST FREQ.				
DRAWN BY				CHECKED BY		APPROVED BY	
Juli Wang				John Chuang		Lionel Lin	

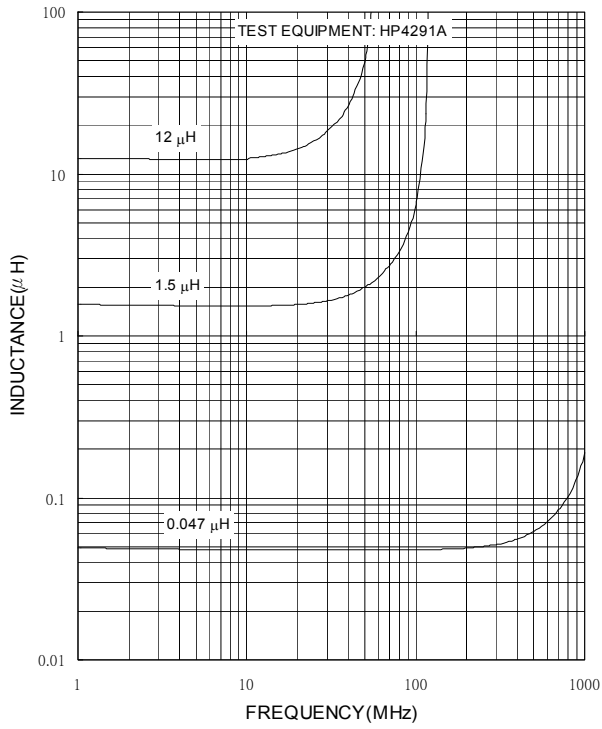
# TEST DATA

CUSTOMER:							
CUSTOMER'S P/N:						SERIES NO:	TL2446
VENDOR'S P/N:		TL201209-R33K				DATE:	03-SEP-2009
MEAS	A	B	C	D	L	Q	Rdc
ITEM	(m/m)	(m/m)	(m/m)	(m/m)	(nH)		( $\Omega$ )
SPEC	$2.0 \pm 0.2$	$1.2 \pm 0.2$	$0.9 \pm 0.2$	$0.5 \pm 0.3$	$330 \pm 10\%$	20 MIN.	0.55 MAX.
TEST FREQ.					25 MHz	25 MHz	
1	2.03	1.21	0.90	0.49	335.3	47.0	0.257
2	2.01	1.20	0.89	0.50	341.1	45.7	0.255
3	2.00	1.22	0.90	0.51	339.9	50.8	0.245
4	1.98	1.19	0.91	0.52	346.3	49.2	0.251
5	2.00	1.21	0.90	0.50	350.8	50.4	0.255
6	2.02	1.20	0.91	0.49	329.0	51.3	0.263
7	2.00	1.19	0.90	0.50	331.9	50.1	0.252
8	1.99	1.22	0.89	0.48	343.7	50.5	0.252
9	2.00	1.20	0.90	0.50	333.6	47.3	0.263
10	1.99	1.19	0.91	0.51	331.5	48.6	0.261
AVG.	2.00	1.20	0.90	0.50	338.3	49.1	0.255
R	0.05	0.03	0.02	0.04	21.8	5.6	0.018
DRAWN BY			CHECKED BY			APPROVED BY	
Juli Wang			John Chuang			Lionel Lin	

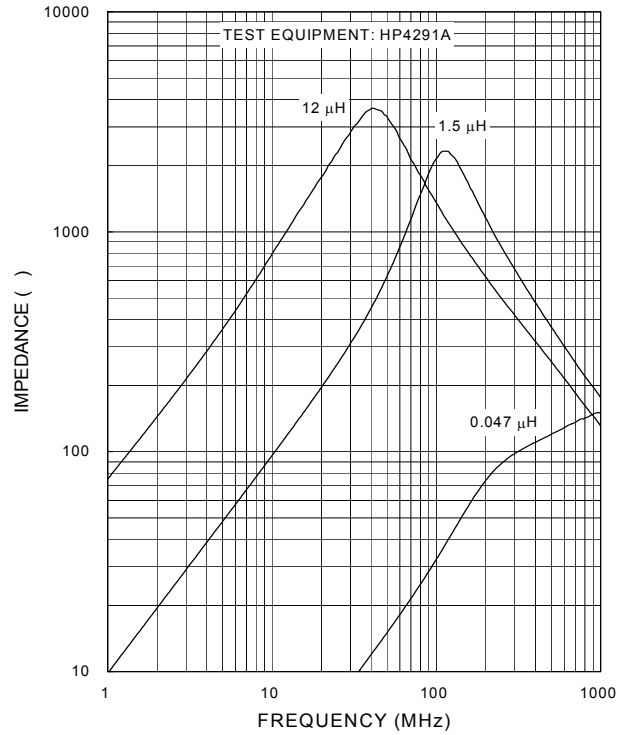
# TYPICAL ELECTRICAL CHARACTERISTICS CURVE

TL2012 Type

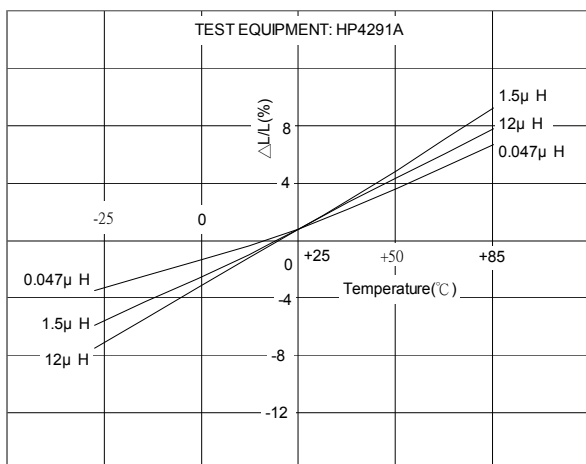
Inductance VS. Frequency



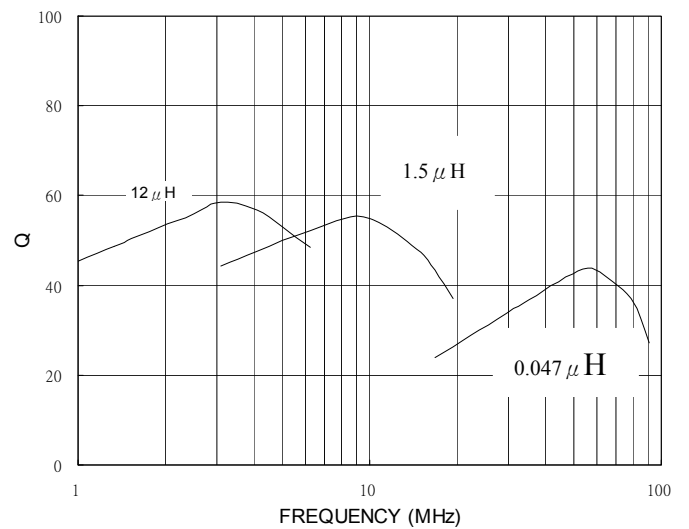
Impedance VS. Frequency



Inductance VS. Temperature

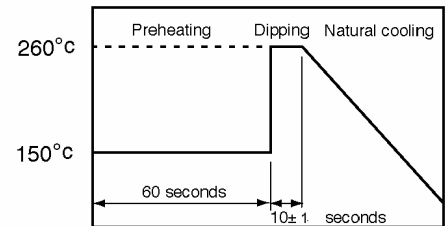


Q VS. Frequency

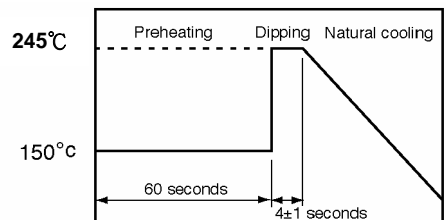


# RELIABILITY TEST

Item	Performance	Test condition
Operating temperature range	-55 °C to + 125 °C	
Storage temperature and umidity ranges	40 °C MAX., 70% RH MAX.	
Soldering heat resistance	The chip shall not be cracks. More than 75% of terminal electrode shall be covered with solder.	Preheat: 150 °C, 60 seconds Solder temperature : 260 ± 5 °C Flux: Rosin Dip time: 10 ± 1 seconds



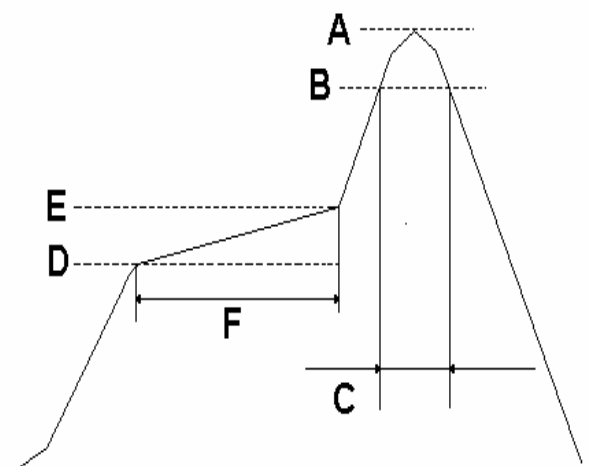
Solderability	More than 90% of the terminal electrode shall be covered with new solder.	Preheat: 150 °C, 60 seconds Solder temperature: 245 ± 5 °C Flux: Rosin Dip time: 4 ± 1 seconds
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## Recommended Soldering Conditions

(REFLOW TEMPERATURE PROFILE) **Lead-Free**

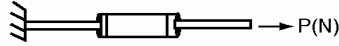
A	$260 \pm 5^{\circ}\text{C}$
B	$230 \pm 5^{\circ}\text{C}$
C	$30 \pm 10 \text{ sec}$
D	$150^{\circ}\text{C}$
E	$180^{\circ}\text{C}$
F	$90 \pm 30 \text{ sec}$



# RELIABILITY TEST

Terminal strength

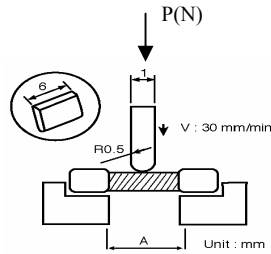
The terminal electrode and the body shall not be damaged by the forces applied on the right conditions.



Type	P (kgf)	Time (s)
T□100505	0.3	
T□160808	0.5	
T□201209	0.6	
T□201212	0.8	
T□321611	1.0	
T□322513	1.0	30 ± 5
T□451616	1.0	
T□453215	1.5	
TA3216M4	0.5	

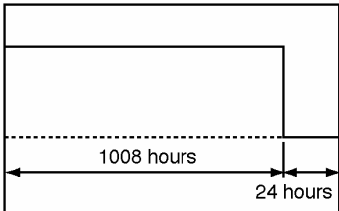
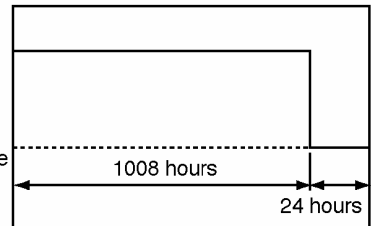
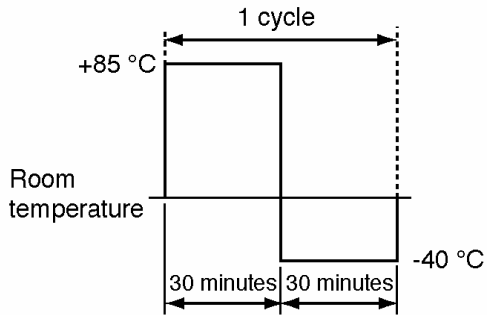
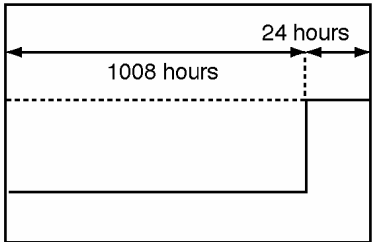
Bending strength

The body shall not be damaged by the forces applied on the right conditions.



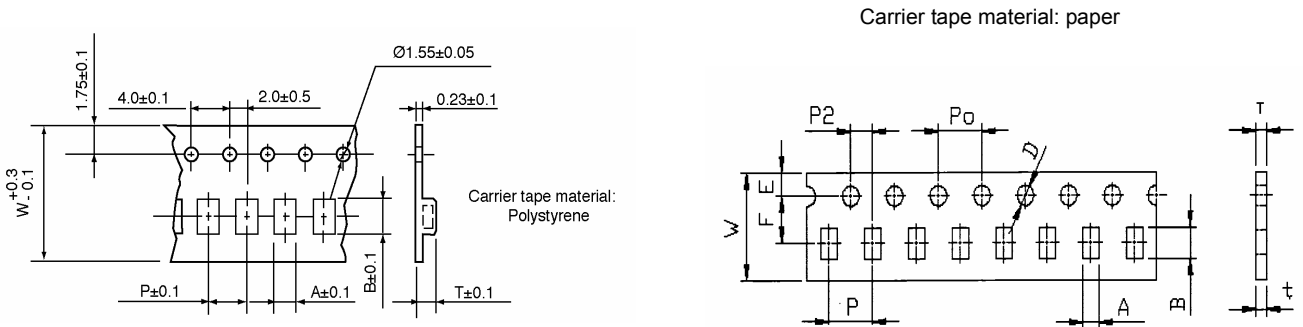
Type	A (mm)	P (kgf)
T□160808	1.0	0.5
T□201209	1.4	1.0
T□201212	1.4	1.2
T□321611	2.0	2.0
T□322513	2.0	2.5
T□451616	2.5	2.5
T□453215	2.7	2.5
TA3216M4	1.4	1.0

# RELIABILITY TEST

Item	Performance	Test condition
High temperature resistance	Appearance : Ferrite shall not be damaged. Inductance : Within $\pm 10\%$ of the initial value. Q: Within $\pm 30\%$ of the initial value.	Temperature: $85\pm 2^{\circ}\text{C}$ Testing time: $1008\pm 12$ hours Measurement: After placing for 24 hours min 
Humidity resistance	Appearance: Ferrite shall not be damaged. Inductance: Within $\pm 10\%$ of the initial value Q: Within $\pm 30\%$ of the initial value.	Humidity: 90 to 95% RH Temperature: $40\pm 2^{\circ}\text{C}$ Testing time: $1008\pm 12$ hours Measurement: After placing for 24 hours min 
Thermal Shock	Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed. Inductance: Within $\pm 10\%$ of the initial value Q: Within $\pm 30\%$ of the initial value.	Temperature: $-40^{\circ}\text{C}$ , $+85^{\circ}\text{C}$ , kept stabilized for 30 minutes each Cycle: 100 cycles Measurement: After placing for 24 hours min 
Low temperature storage life test	Appearance: Cracking, chipping or any other defects harmful to the characteristics shall not be allowed. Inductance: Within $\pm 10\%$ of the initial value. Q: Within $\pm 30\%$ of the initial value.	Temperature: $-40\pm 2^{\circ}\text{C}$ Testing time: $1008\pm 12$ hours Measurement: After placing for 24 hours min 

# PACKAGING

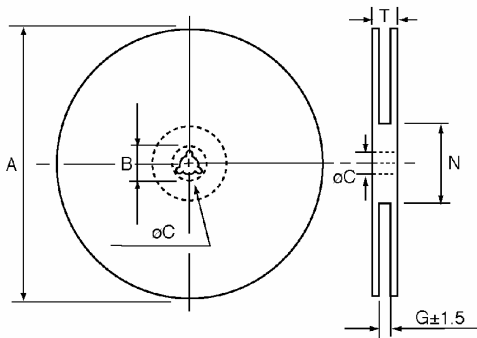
- Tape dimensions and packaging quantities



material: Paper ( Dimensions in mm)						
TYPE	A	B	W	P	T	CHIPS / REEL
100505	0.62	1.12	8	2	0.60	10000
160808	1.10	1.90	8	4	0.95	4000
201209	1.50	2.30	8	4	0.95	4000
material: Polystyrene ( Dimensions in mm)						
TYPE	A	B	W	P	T	CHIPS / REEL
160808	1.01	1.80	8	4	1.02	4000
201209	1.42	2.25	8	4	1.04	4000
201212	1.50	2.35	8	4	1.45	2000
321611	1.88	3.50	8	4	1.27	3000

- Reel dimensions

Material: Paper, Plastic



Dimensions in mm

TYPE	8mm	12mm
A	178±2	178±2
B	21.0±0.8	21.0±0.8
C	13.0±0.8	13.0±0.8
G	10.0	14.0
N	75	75
T	12.5	16.5

