



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



FEATURES



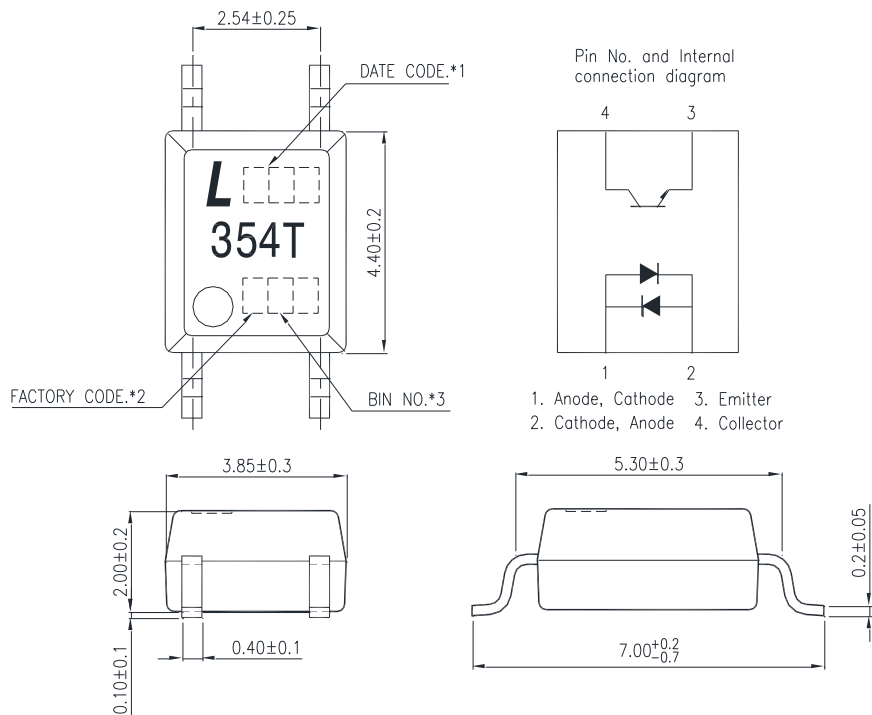
- * Current transfer ratio
(CTR : MIN. 20% at $I_F = \pm 1\text{mA}$, $V_{CE} = 5\text{V}$)
- * Isolation voltage between input and output LTV-354T
($V_{iso} = 3,750\text{V}_{rms}$)
- * Mini-flat package :
2.0mm profile : LTV-354T
- * UL, CUL, CSA, FIMKO, NEMKO, DEMKO, SEMKO approved
- * RoHS compliance

APPLICATIONS

- * Hybrid substrates that require high density mounting.
- * Programmable controllers
- * System appliance, measuring instruments

OUTLINE DIMENSIONS

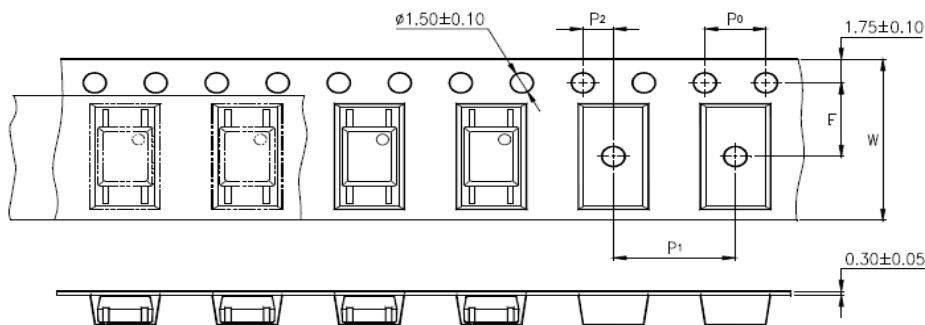
LTV-354T :



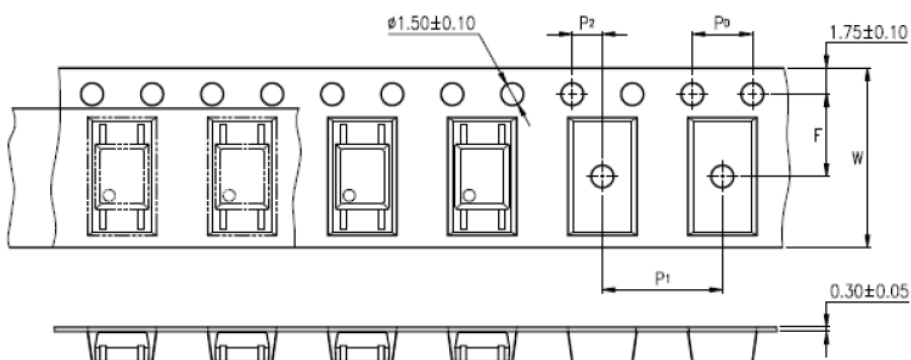
- *1. 3-digit date code.
- *2. Factory identification mark shall be marked (W: China-CJ, X: China-TJ, Y: Thailand).
- *3. Rank shall be or shall not be marked.

TAPING DIMENSIONS

TP1 MINI FLAT (3000pcs/reel) : Suffix "-TP1"



TP MINI FLAT (3000pcs/reel) : Suffix "-TP"



Content Quantity

Model	Reel volume (pcs/Reel)	Inner Box volume (Reel/Box)	Outer carton volume (Box/Carton)	Total volume (pcs/outer carton)
MFP TP/TP1	3000	2	10	60000

Description	Symbol	Dimensions in mm (inches)
Tape wide	W	12 ± 0.3 (.47)
Pitch of sprocket holes	P_0	4 ± 0.1 (.15)
Distance of compartment	F	5.5 ± 0.1 (.217)
Distance of compartment to compartment	P_2	2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	8 ± 0.1 (.315)

ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

PARAMETER		SYMBOL	RATING	UNIT
INPUT	Forward Current	I _F	±50	mA
	Power Dissipation	P	70	mW
OUTPUT	Collector - Emitter Voltage	V _{CEO}	35	V
	Emitter - Collector Voltage	V _{ECO}	6	V
	Collector Current	I _c	50	mA
	Collector Power Dissipation	P _c	150	mW
Total Power Dissipation		P _{tot}	170	mW
*1	Isolation Voltage	V _{iso}	3,750	V _{rms}
Operating Temperature		T _{opr}	-30~ +110	°C
Storage Temperature		T _{stg}	-55 ~ +150	°C
*2	Soldering Temperature	T _{sol}	260	°C

*1. AC For 1 Minute, R.H. = 40 ~ 60%

Isolation voltage shall be measured using the following method.

- (1) Short between anode and cathode on the primary side and between collector and emitter on the secondary side.
- (2) The isolation voltage tester with zero-cross circuit shall be used.
- (3) The waveform of applied voltage shall be a sine wave.

*2. For 10 Seconds

ELECTRICAL - OPTICAL CHARACTERISTICS

(Ta = 25°C)

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
INPUT	Forward Voltage	V_F	—	1.2	1.4	V	$I_F = \pm 20\text{mA}$
	Terminal Capacitance	C_t	—	30	250	pF	$V = 0, f = 1\text{KHz}$
OUTPUT	Collector Dark Current	I_{CEO}	—	—	100	nA	$V_{CE} = 20\text{V}, I_F = 0$
	Collector-Emitter Breakdown Voltage	BV_{CEO}	35	—	—	V	$I_C = 0.1\text{mA}$ $I_F = 0$
	Emitter-Collector Breakdown Voltage	BV_{ECO}	6	—	—	V	$I_E = 10\mu\text{A}$ $I_F = 0$
TRANSFER CHARACTERISTICS	Collector Current	I_C	0.2	—	4	mA	$I_F = \pm 1\text{mA}$ $V_{CE} = 5\text{V}$
	*1 Current Transfer Ratio	CTR	20	—	400	%	
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	0.1	0.2	V	$I_F = \pm 20\text{mA}$ $I_C = 1\text{mA}$
	Isolation Resistance	R_{iso}	5×10^{10}	1×10^{11}	—	Ω	DC500V 40 ~ 60% R.H.
	Floating Capacitance	C_f	—	0.6	1	pF	$V = 0, f = 1\text{MHz}$
	Response Time (Rise)	t_r	—	4	18	μs	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$ $R_L = 100\Omega$
	Response Time (Fall)	t_f	—	3	18	μs	

$$*1 \text{ CTR} = \frac{I_C}{I_F} \times 100\%$$

RANK TABLE OF CURRENT TRANSFER RATIO CTR

MODEL NO.	RANK MARK	CTR (%)
LTV-354T	A	50 ~ 150
	A or No mark	20 ~ 400

CONDITIONS	$I_F = \pm 1 \text{ mA}$ $V_{CE} = 5 \text{ V}$ $T_a = 25 \text{ }^\circ\text{C}$
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CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

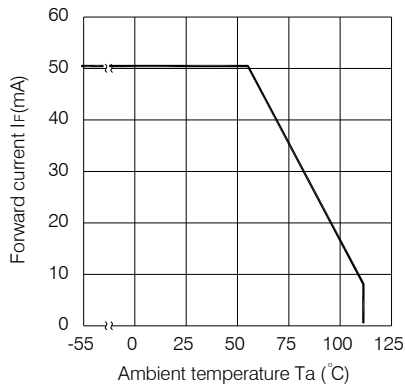


Fig.2 Collector Power Dissipation vs. Ambient Temperature

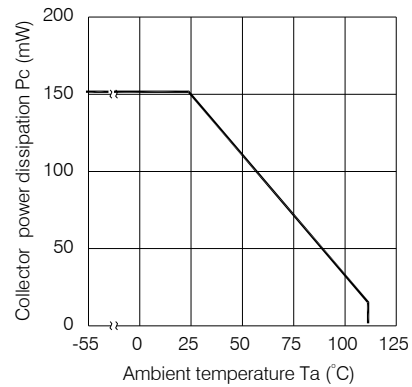


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

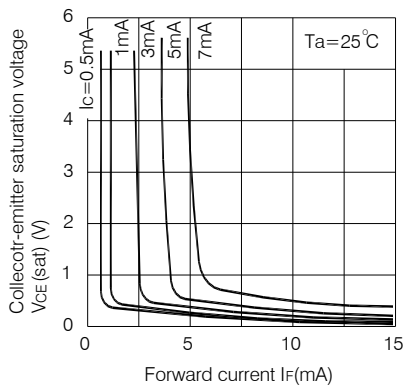


Fig.4 Forward Current vs. Forward Voltage

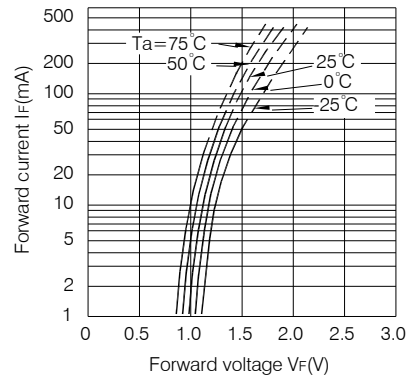


Fig.5 Current Transfer Ratio vs. Forward Current

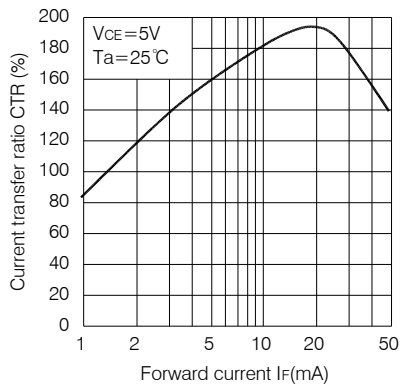
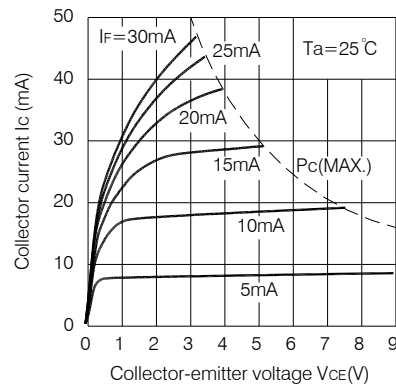


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

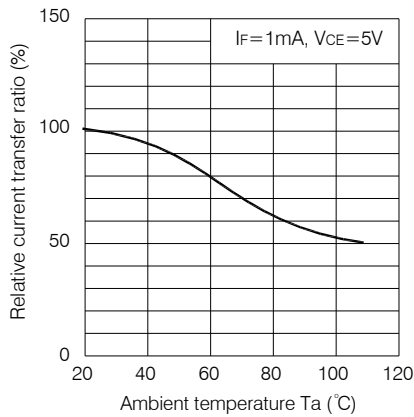


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

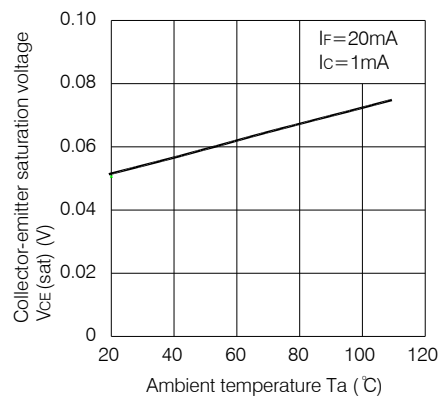


Fig.9 Collector Dark Current vs. Ambient Temperature

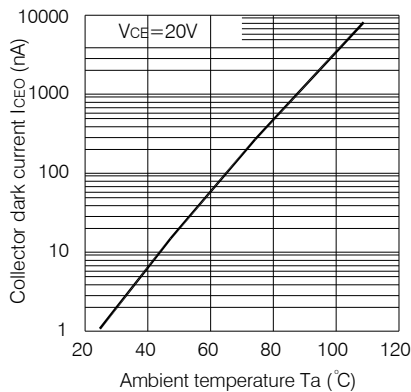


Fig.10 Response Time vs. Load Resistance

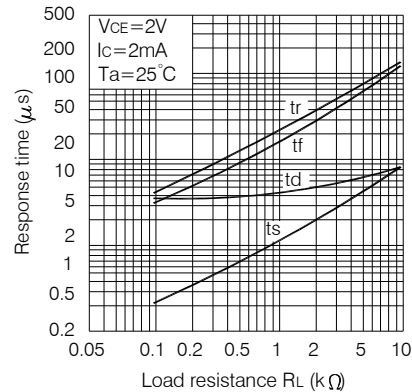
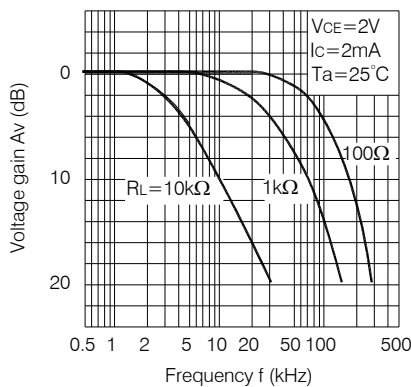
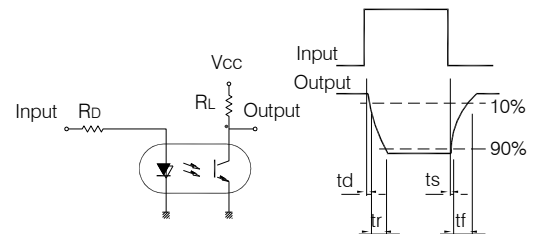


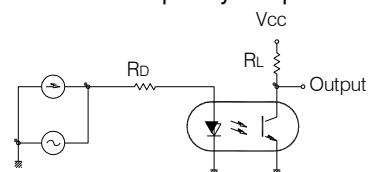
Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

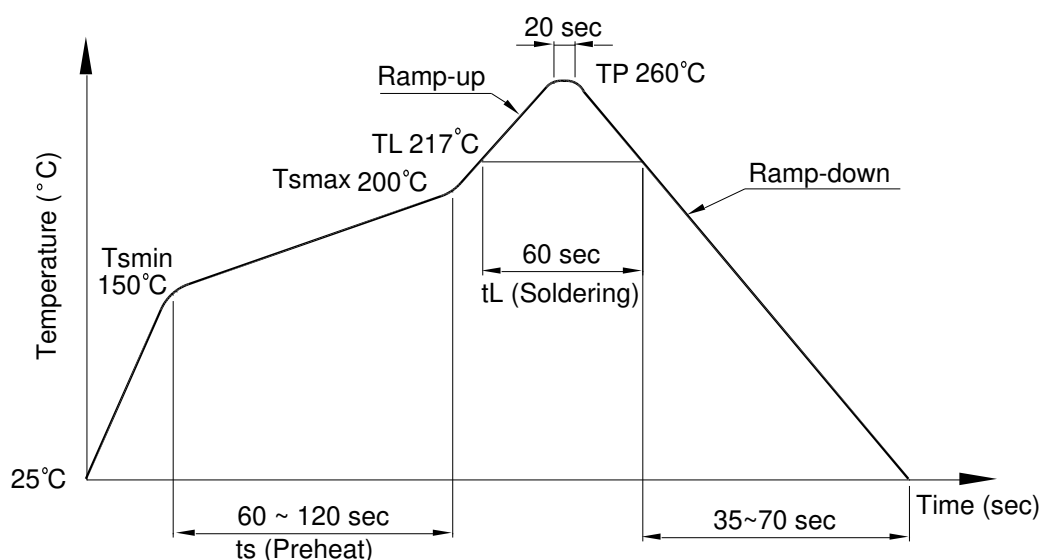


TEMPERATURE PROFILE OF SOLDERING REFLOW

(1) IR Reflow soldering (JEDEC-STD-020C compliant)

One time soldering reflow is recommended within the condition of temperature and time profile shown below.

Profile item	Conditions
Preheat - Temperature Min (T_{Smin}) - Temperature Max (T_{Smax}) - Time (min to max) (ts)	150°C 200°C 90±30 sec
Soldering zone - Temperature (T_L) - Time (t_L)	217°C 60 sec
Peak Temperature (T_P)	260°C
Ramp-up rate	3°C / sec max.
Ramp-down rate	3~6°C / sec



TEMPERATURE PROFILE OF SOLDERING REFLOW

(2) Wave soldering (JEDEC22A111 compliant)

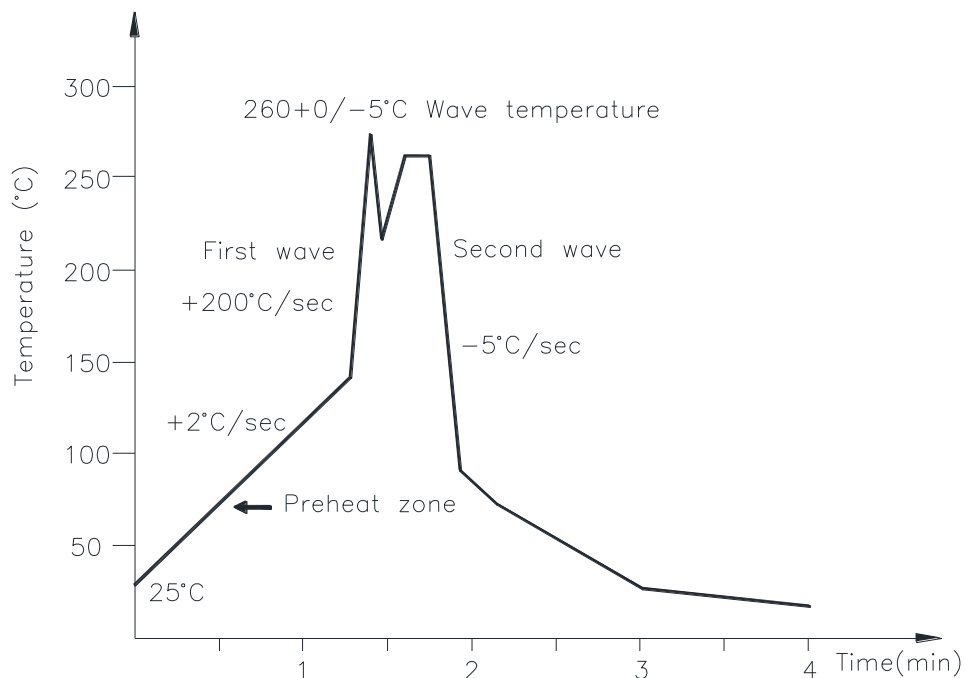
One time soldering is recommended within the condition of temperature.

Temperature: $260 \pm 5^\circ\text{C}$

Time: 10 sec.

Preheat temperature: 25 to 140°C

Preheat time: 30 to 80 sec.



(3) Hand soldering by soldering iron

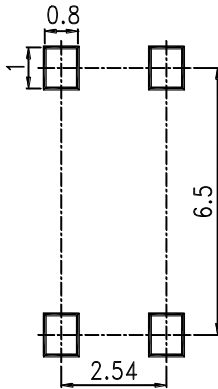
Allow single lead soldering in every single process. One time soldering is recommended.

Temperature: $380 \pm 5^\circ\text{C}$

Time: 3 sec max.

RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm



TEMPERATURE PROFILE OF SOLDERING REFLOW

- Lite-On is continually improving the quality, reliability, function or design and Lite-On reserves the right to make changes without further notices.
- The products shown in this publication are designed for the general use in electronic applications such as office automation equipment, communications devices, audio/visual equipment, electrical application and instrumentation.
- For equipment/devices where high reliability or safety is required, such as space applications, nuclear power control equipment, medical equipment, etc, please contact our sales representatives.
- When requiring a device for any "specific" application, please contact our sales in advice.
- If there are any questions about the contents of this publication, please contact us at your convenience.
- The contents described herein are subject to change without prior notice.
- Immerge unit's body in solder paste is not recommended.