



Photocoupler Product Data Sheet

LTV-733

(M,S,S-TA1)

Spec No.: DS-70-99-0008

Effective Date: 09/20/2001

Revision: B

LITE-ON DCC

RELEASE

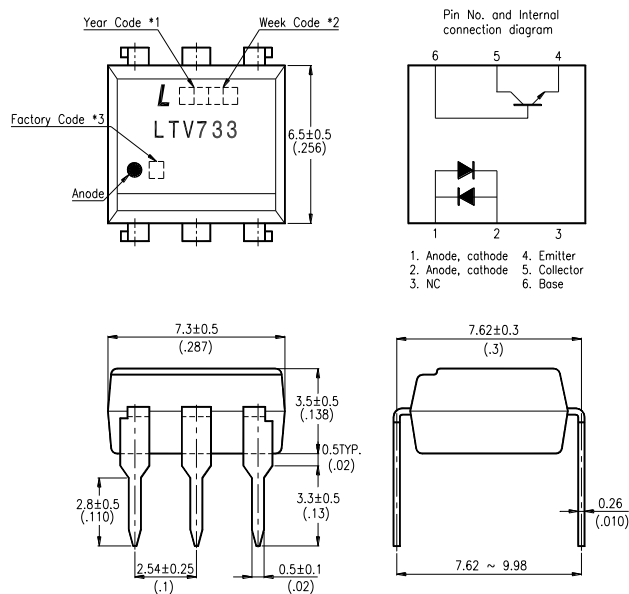
BNS-OD-FC001/A4

FEATURES

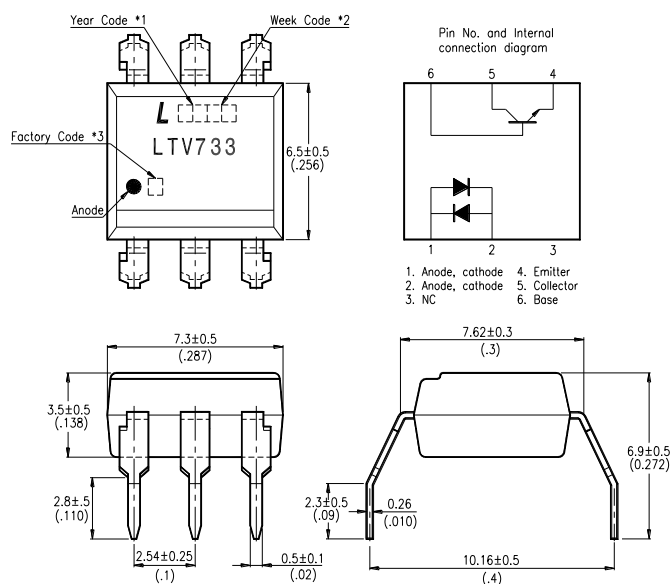
- * Directly connectable to TTL
- * AC input response
- * High input-output isolation voltage
($V_{iso} = 5,000V_{rms}$)
- * Low collector dark current
($I_{CEO} : \text{MAX. } 10^{-7}A$ at $V_{CE} = 20V$)
- * Current transfer ratio
($CTR : \text{MIN. } 20\%$ at $I_F = \pm 1mA$, $V_{CE} = 5V$)
- * Response time
($t_r : \text{TYP. } 4\mu s$ at $V_{CE} = 2V$, $I_C = 2mA$, $R_L = 100\Omega$)
- * Dual-in-line package :
LTV-733
- * Wide lead spacing package :
LTV-733M
- * Surface mounting package :
LTV-733S
- * Tape and reel packaging :
LTV-733S-TA1
- * UL approved (No. E113898)
- * VDE approved (No. 094722)
- * CSA approved (No. CA91533-1)
- * FIMKO approved (No. 203512)
- * NEMKO approved (No. P98102534)
- * DEMKO approved (No. 308184)
- * SEMKO approved (No. 9844179 / 01-02)

OUTLINE DIMENSIONS

LTV-733 :



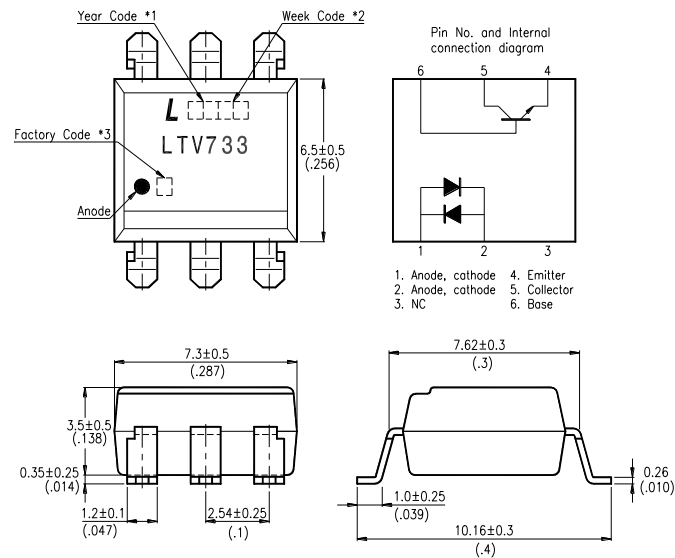
LTV-733M :



- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

OUTLINE DIMENSIONS

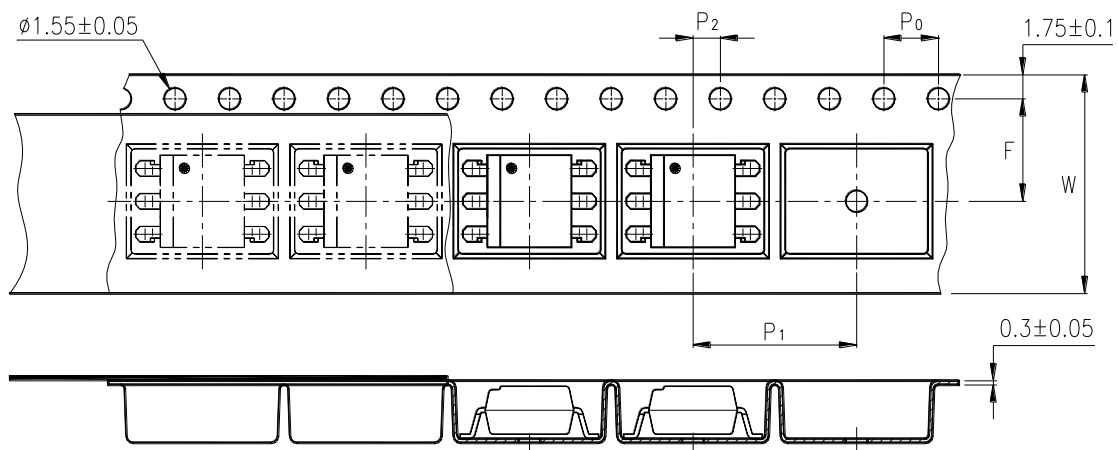
LTV-733S :



- *1. Year date code.
- *2. 2-digit work week.
- *3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

TAPING DIMENSIONS

LTV-733S-TA1 :



Description	Symbol	Dimensions in mm (inches)
Tape wide	W	16 ± 0.3 (.63)
Pitch of sprocket holes	P_0	4 ± 0.1 (.15)
Distance of compartment	F	7.5 ± 0.1 (.295)
Distance of compartment to compartment	P_1	2 ± 0.1 (.079)
Distance of compartment to compartment	P_2	12 ± 0.1 (.472)

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 - Base Voltage	V _{CBO}	35	V
	Emitter - Base Voltage	V _{EBO}	6	V
	Collector Current	I _C	50	mA
	Collector Power Dissipation	P _C	150	mW
Total Power Dissipation		P _{tot}	200	mW
*1	Isolation Voltage	V _{iso}	5,000	V _{Rms}
Operating Temperature		T _{opr}	-30 ~ +100	°C
Storage Temperature		T _{stg}	-55 ~ +125	°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	—	50	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	—	3	mA	$I_F = \pm 1\text{mA}$ $V_{CE} = 5\text{V}$
	* Current Transfer Ratio	CTR	20	—	300	%	
	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	$V = 0, f = 1\text{MHz}$
	Cut-Off Frequency	f_c	15	80	—	kHz	$V_{CE} = 5\text{V}, I_C = 2\text{mA}$ $R_L = 100\Omega, -3\text{dB}$
	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		

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

CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

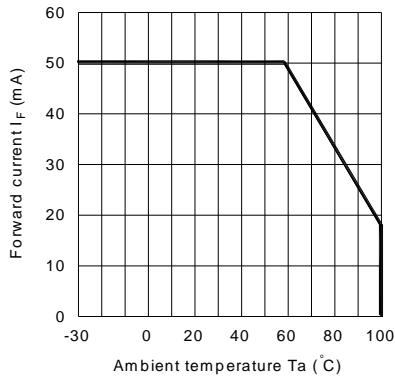


Fig.2 Collector Power Dissipation vs. Ambient Temperature

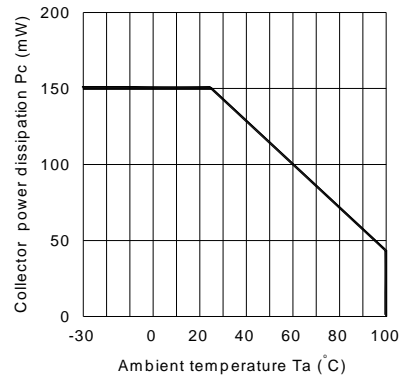


Fig.3 Collector-emitter saturation Voltage vs. Forward current

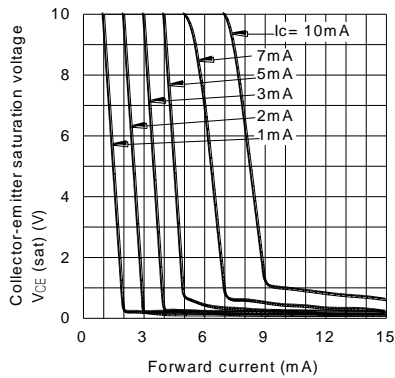


Fig.4 Forward Current vs. Forward Voltage

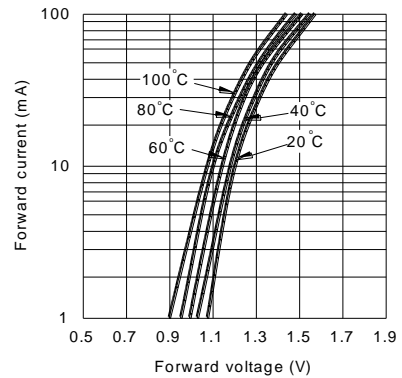


Fig.5 Current Transfer Ratio vs. Forward Current

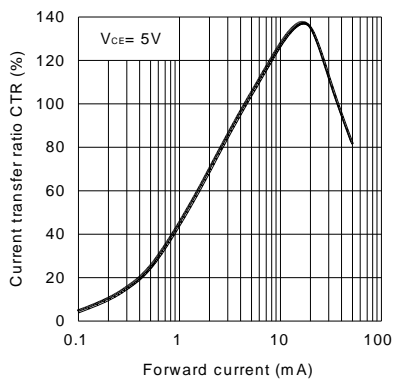
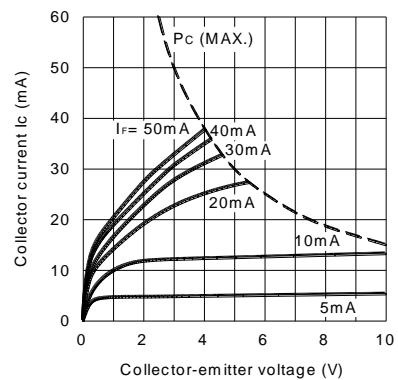


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

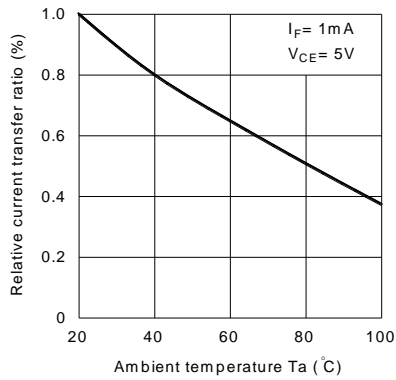


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

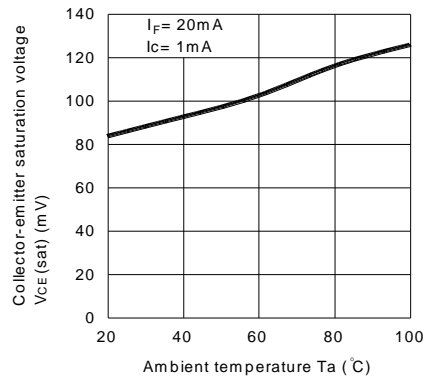


Fig.9 Collector Dark Current vs. Temperature

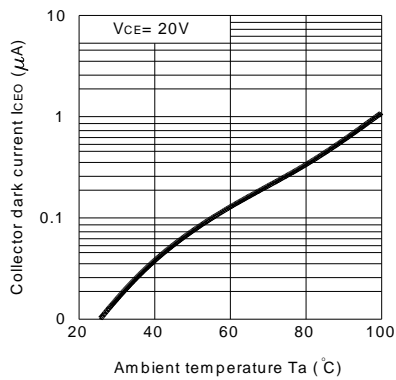


Fig.10 ICBO vs. Temperature

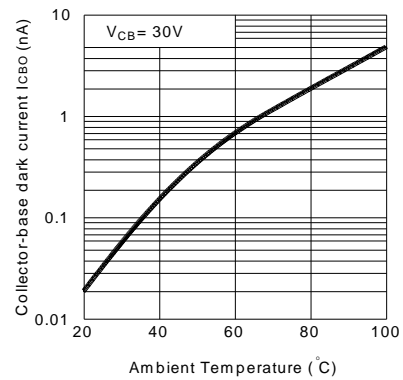


Fig.11 Response Time vs. Load Resistance

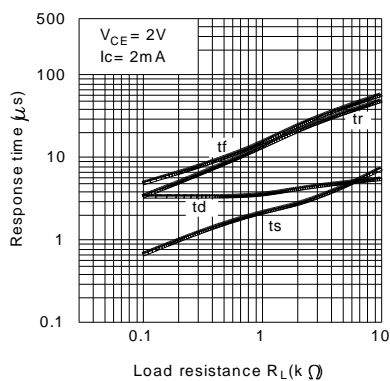
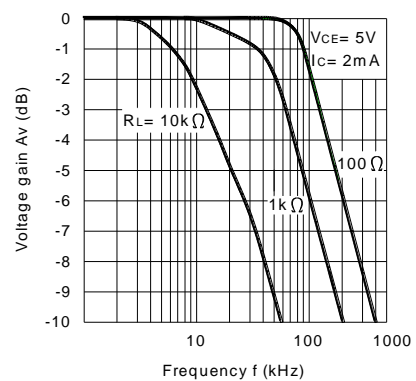


Fig.12 Frequency Response



RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm

