



Photocoupler

Product Data Sheet

LTV-725F

(M, S, S-TA1)

Spec No.: DS-70-99-0016

Effective Date: 09/20/2001

Revision: B

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

LITE-ON Technology Corp. / Optoelectronics

No.90,Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C.

Tel: 886-2-2222-6181 Fax: 886-2-2221-1948 / 886-2-2221-0660

<http://www.liteon.com/opto>

FEATURES

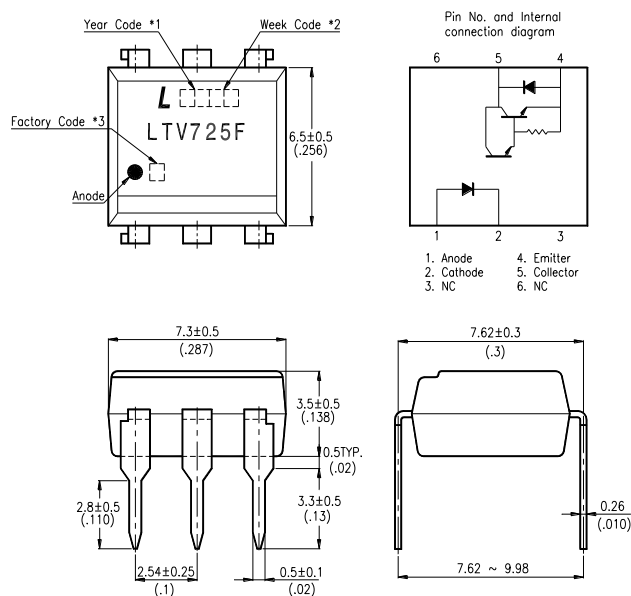
- * High collector-emitter voltage
(V_{CEO} : 300V)
- * High current transfer ratio
(CTR : MIN. 1,000 at $I_F=1\text{mA}$, $V_{CE}=2\text{V}$)
- * High isolation voltage between input and output
(V_{ISO} = 5,000Vrms)
- * Low collector dark current
(I_{CEO} : MAX. 10^{-6}A at $V_{CE} = 200\text{V}$)
- * Dual-in-line package :
LTV-725F
- * Wide lead spacing package :
LTV-725FM
- * Surface mounting package :
LTV-725FS
- * Tape and reel packaging :
LTV-725FS-TA1
- * UL approved (No. E113898)
- * TUV approved (No. R9653630)
- * CSA approved (No. CA91533-1)
- * FIMKO approved (No. 209049)
- * NEMKO approved (No. P99102464)
- * DEMKO approved (No. 99-04182)
- * SEMKO approved (No. 9943380 / 01-20)
- * VDE approved (No. 094722)

LITE-ON TECHNOLOGY CORPORATION

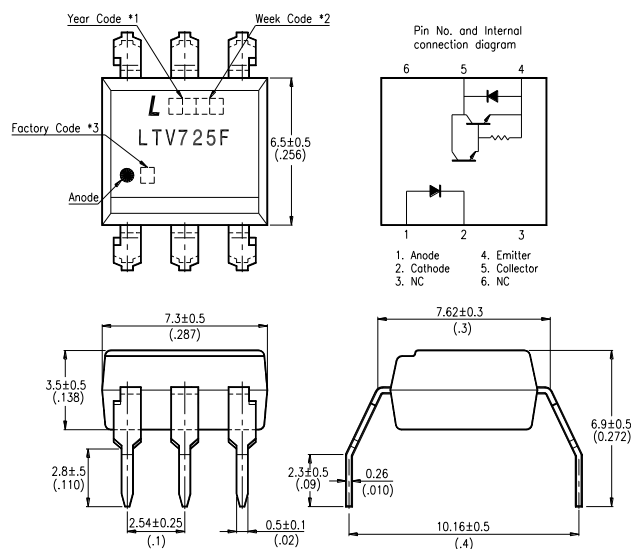
Property of LITE-ON Only

OUTLINE DIMENSIONS

LTV-725F :



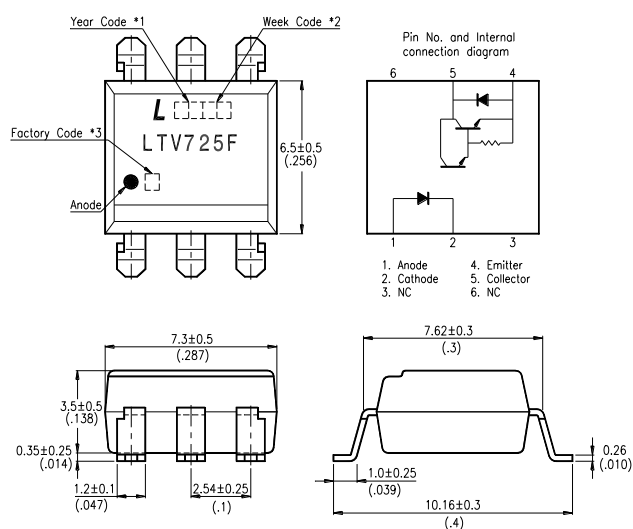
LTV-725FM :



- *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-725FS :



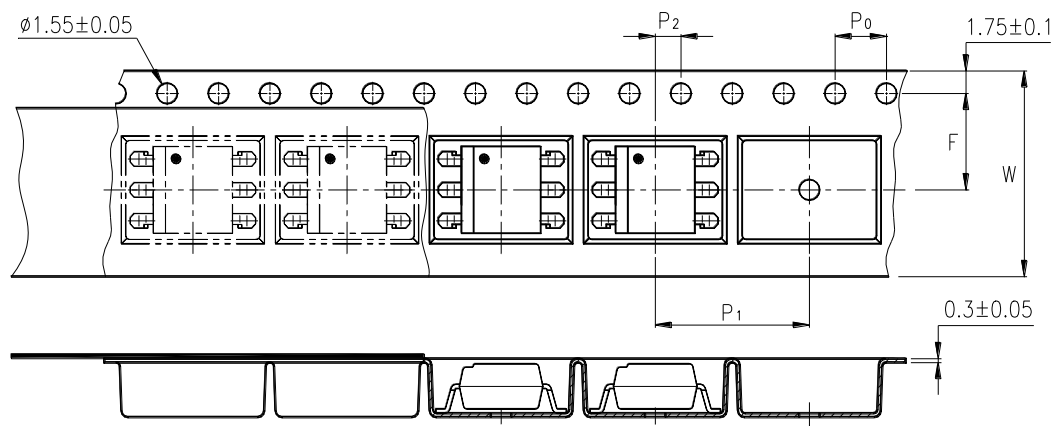
*1. Year date code.

*2. 2-digit work week.

*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

TAPING DIMENSIONS

LTV-725FS-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)
	P_2	12 ± 0.1 (.472)

ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

PARAMETER		SYMBOL	RATING	UNIT
INPUT	Forward Current	I _F	50	mA
	Reverse Voltage	V _R	6	V
	Power Dissipation	P	70	mW
OUTPUT	Collector - Emitter Voltage	V _{CEO}	300	V
	Collector Current	I _C	150	mA
	Emitter-Collector Voltage	V _{ECO}	0.1	V
	Collector Power Dissipation	P _C	300	mW
Total Power Dissipation		P _{tot}	350	mW
*1 Isolation Voltage		V _{iso}	5,000	V _{rms}
Operating Temperature		T _{opr}	-25 ~ +100	°C
Storage Temperature		T _{stg}	-40 ~ +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 =10mA
	Reverse Current	I _R	—	—	10	μA	V _R =4V
	Terminal Capacitance	C _t	—	30	250	pF	V=0, f=1KHz
OUTPUT	Collector Dark Current	I _{CEO}	—	—	10 ⁻⁶	A	V _{CE} =200V, I _F =0
	Collector-Emitter Breakdown Voltage	BV _{CEO}	300	—	—	V	I _C =0.1mA I _F =0
	Emitter-Collector Breakdown Voltage	BV _{ECO}	0.1	—	—	V	I _E =10μA I _F =0
TRANSFER CHARACTERISTICS	Collector Current	I _C	10	40	150	mA	I _F =1mA V _{CE} =2V
	* Current Transfer Ratio	CTR	1,000	4,000	15,000	%	
	Collector-Emitter Saturation Voltage	V _{CE(sat)}	—	—	1.2	V	I _F =20mA I _C =100mA
	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=1MHz
	Cut-Off Frequency	f _c	1	7	—	kHz	V _{CE} =2V, I _C =20mA R _L =100Ω, -3dB
	Response Time (Rise)	t _r	—	100	300	μs	V _{CE} =2V, I _C =20mA R _L =100Ω
	Response Time (Fall)	t _f	—	20	100	μs	

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

CHARACTERISTICS CURVES

Fig.1 Forward Current vs.
Ambient Temperature

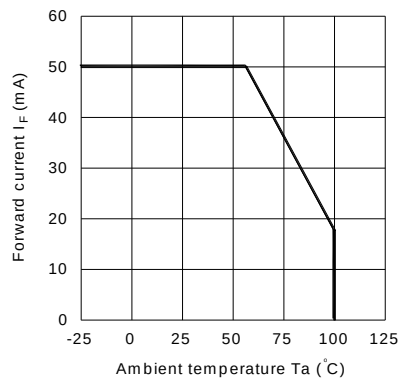


Fig.2 Collector Power Dissipation vs.
Ambient Temperature

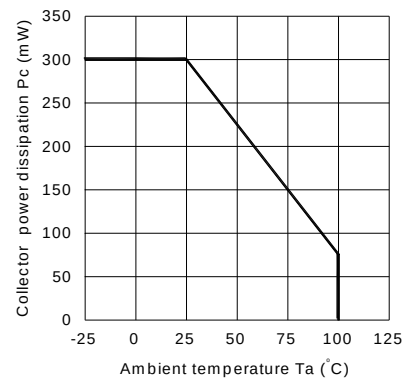


Fig.3 Forward Current vs. Forward
Voltage

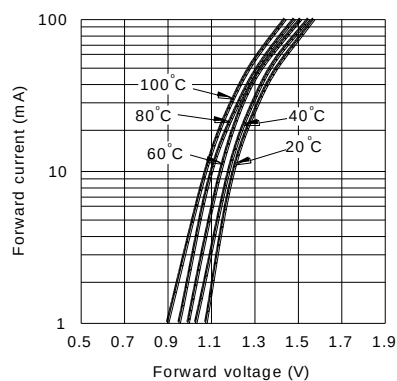


Fig.4 Current Transfer Ratio vs. Forward
Current

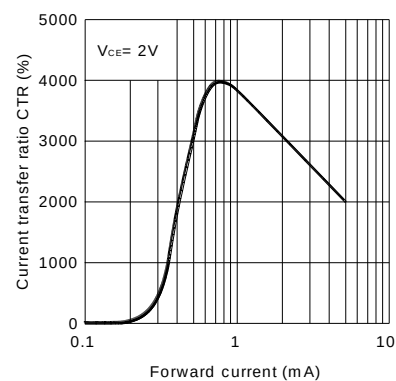


Fig.5 Collector Current vs.
Collector-emitter Voltage

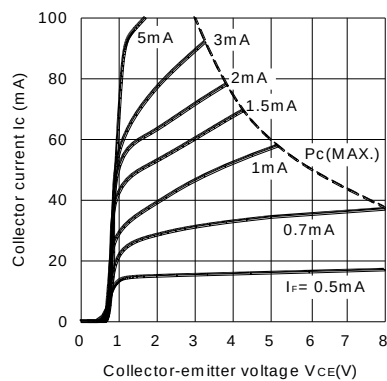
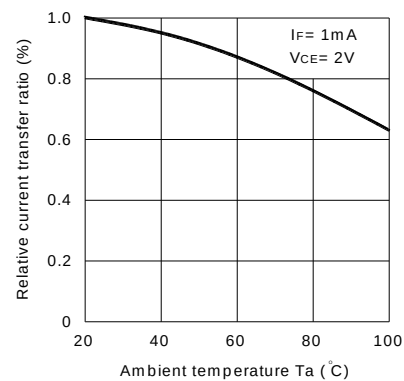


Fig.6 Relative Current Transfer Ratio
vs. Ambient Temperature



CHARACTERISTICS CURVES

Fig.7 Collector-emitter Saturation Voltage vs. Ambient Temperature

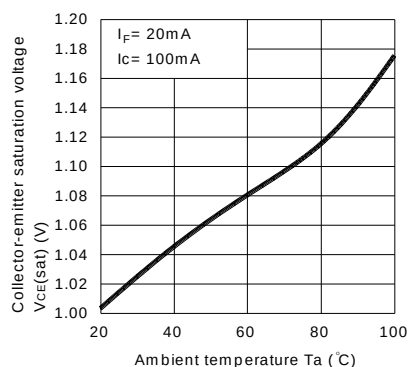


Fig.8 Collector Dark Current vs. Temperature

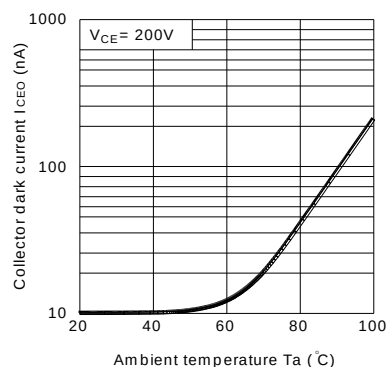


Fig.9 Response Time vs. Load Resistance

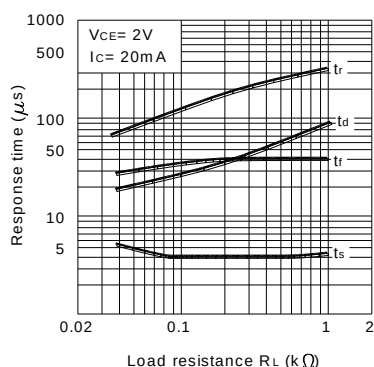
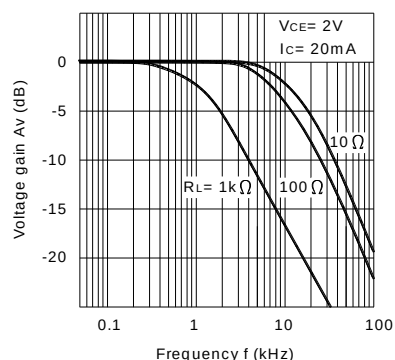
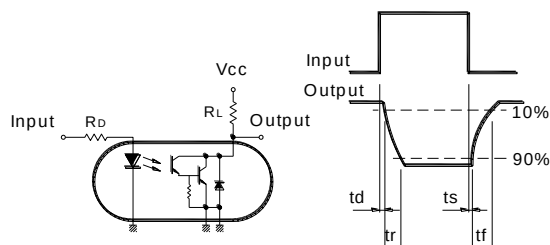


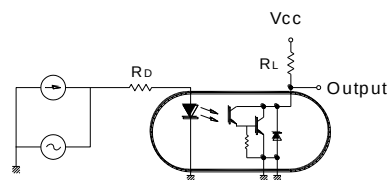
Fig.10 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response



RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm

