LTV-814HS Datasheet

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DiGi Electronics Part Number	LTV-814HS-DG
Manufacturer	Lite-On Inc.
Manufacturer Product Number	LTV-814HS
Description	OPTOISOLATR 5KV TRANSISTOR 4-SMD
Detailed Description	Optoisolator Transistor Output 5000Vrms 1 Channel 4-SMD

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
LTV-814HS	Lite-On Inc.
Series:	Product Status:
-	Active
Number of Channels:	Voltage - Isolation:
1	5000Vrms
Current Transfer Ratio (Min):	Current Transfer Ratio (Max):
20% @ 100mA	80% @ 100mA
Turn On / Turn Off Time (Typ):	Rise / Fall Time (Typ):
-	4µs, 3µs
Input Type:	Output Type:
AC, DC	Transistor
Voltage - Output (Max):	Current - Output / Channel:
35V	80mA
Voltage - Forward (Vf) (Typ):	Current - DC Forward (If) (Max):
1.4V	150 mA
Vce Saturation (Max):	Operating Temperature:
200mV	-30°C ~ 100°C
Mounting Type:	Package / Case:
Surface Mount	4-SMD, Gull Wing
Supplier Device Package:	Base Product Number:
4-SMD	LTV-814

Environmental & Export classification

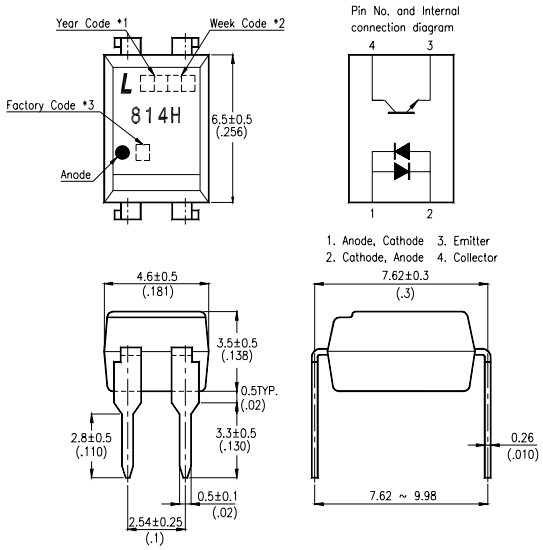
RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.49.8000	

FEATURES

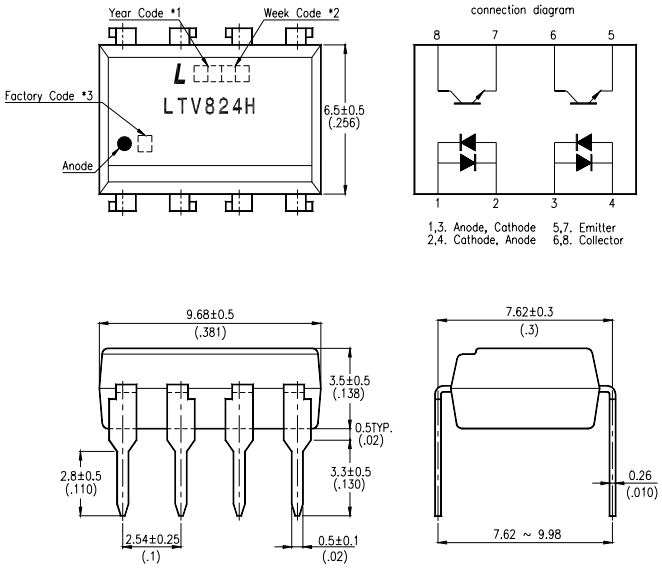
* AC input response
* High input current
  (I_F : MAX. 150mA)
* High input-output isolation voltage
  (V_{iso} = 5,000Vrms)
* Low collector dark current
  (I_{CEO} : MAX. 10^{-7}A at V_{CE} = 20V)
* Current transfer ratio
  (CTR : MIN. 20% at I_F = ±100mA, V_{CE} = 2V)
* Dual-in-line package :
  LTV-814H : 1-channel type
  LTV-824H : 2-channel type
  LTV-844H : 4-channel type
* Wide lead spacing package :
  LTV-814HM : 1-channel type
  LTV-824HM : 2-channel type
  LTV-844HM : 4-channel type
* Surface mounting package :
  LTV-814HS : 1-channel type
  LTV-824HS : 2-channel type
  LTV-844HS : 4-channel type
* Tape and reel packaging :
  LTV-814HS-TA1, LTV-824HS-TA1
* UL approved (No. E113898) only 814H
* TUV approved (No. R9653630)
* CSA approved (No. CA91533)
* VDE approved (No. 094722) only 814H

OUTLINE DIMENSIONS

LTV-814H :



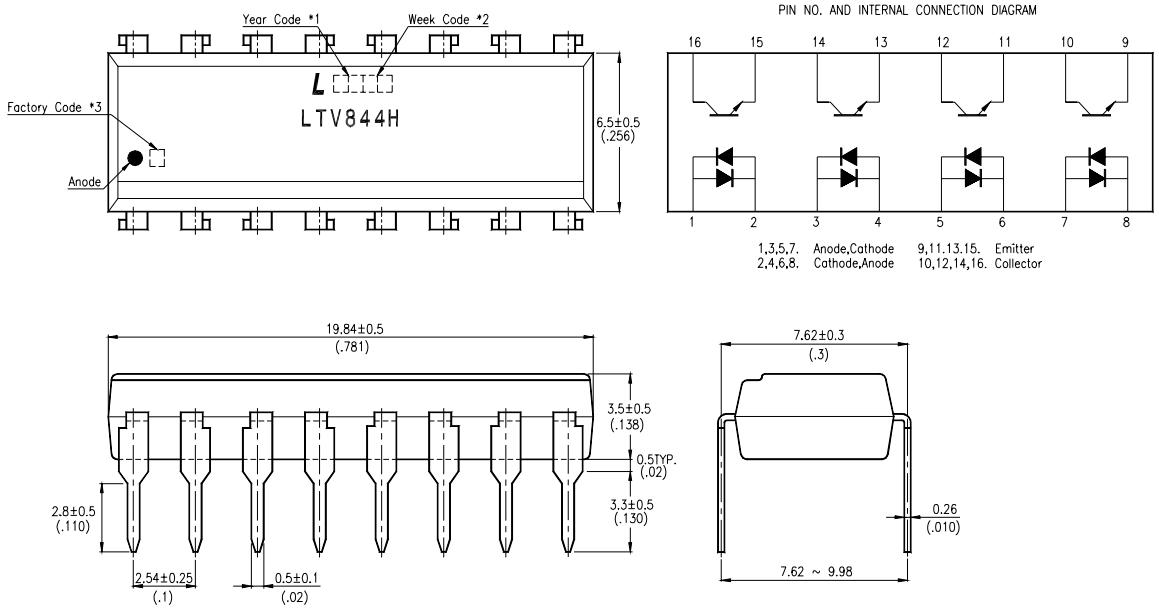
LTV-824H :



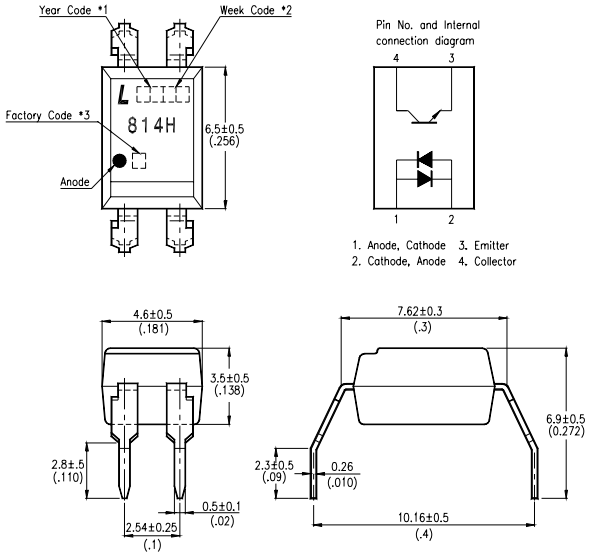
*1. Year date code.
*2. 2-digit work week.
*3. Factory identification mark shall be marked (Z : Taiwan, Y : Thailand, X : China).

OUTLINE DIMENSIONS

LTV-844H :



LTV-814HM :



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OUTLINE DIMENSIONS

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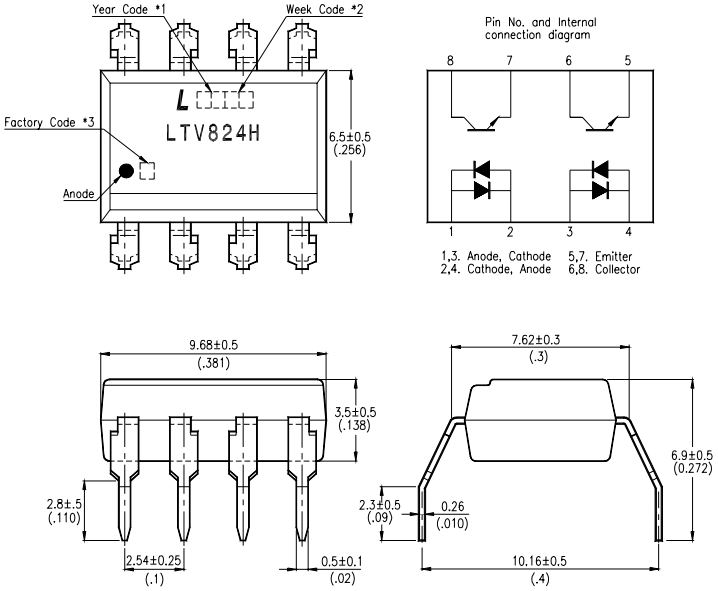

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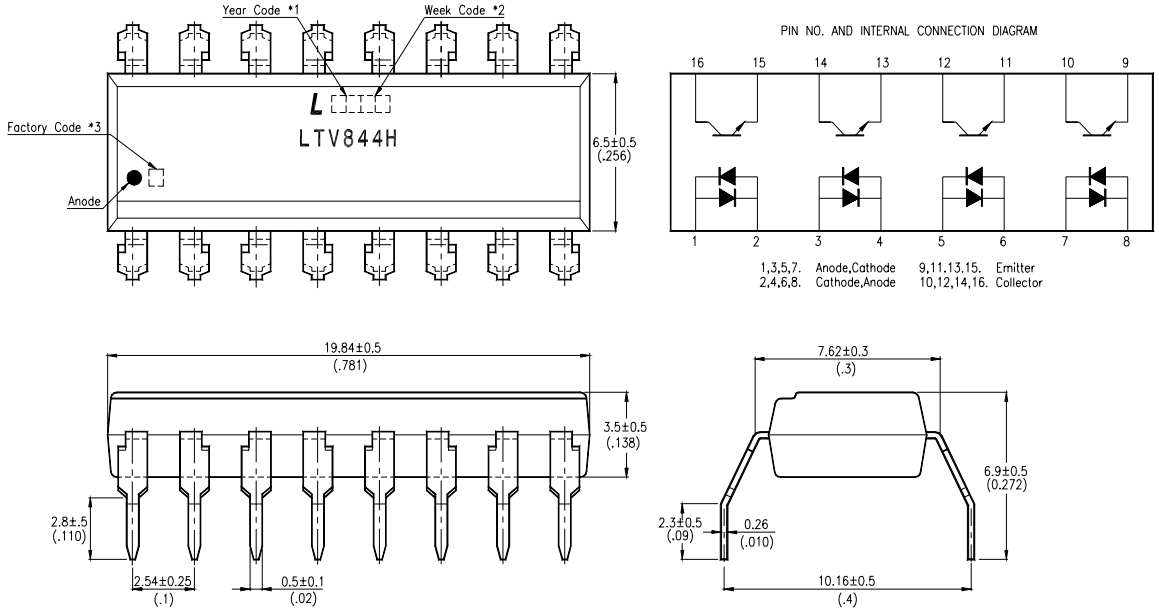

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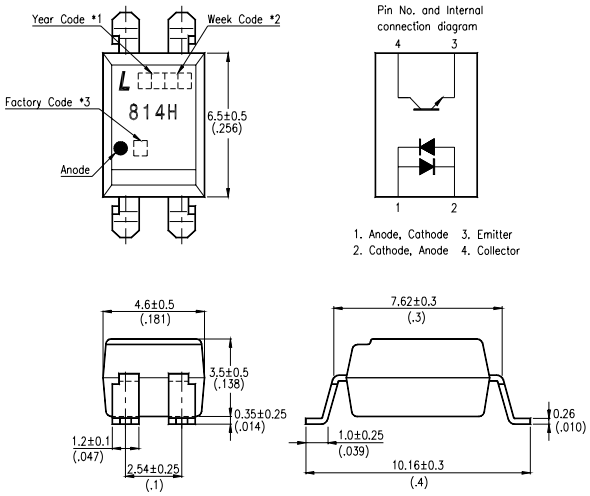
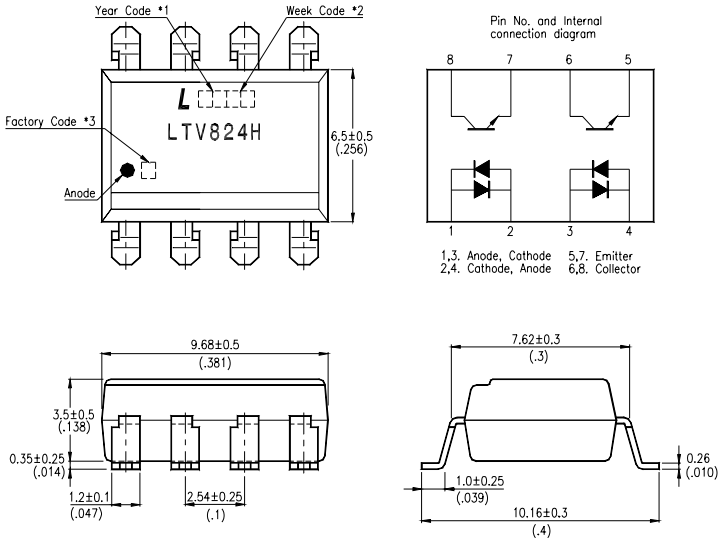


LTV-824HS :



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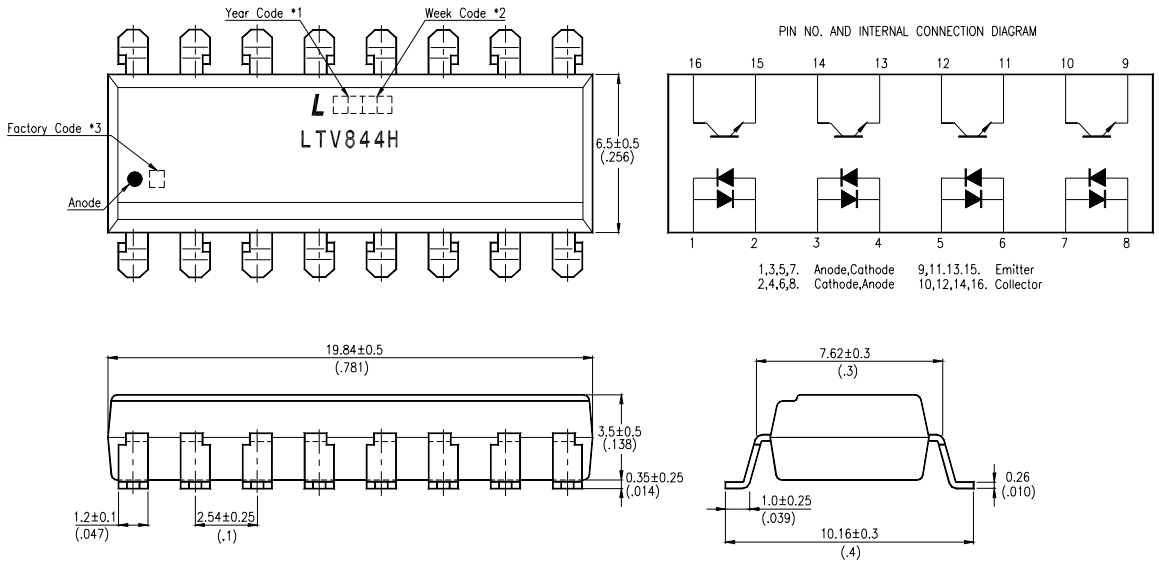
OUTLINE DIMENSIONS

LTV-844HS :



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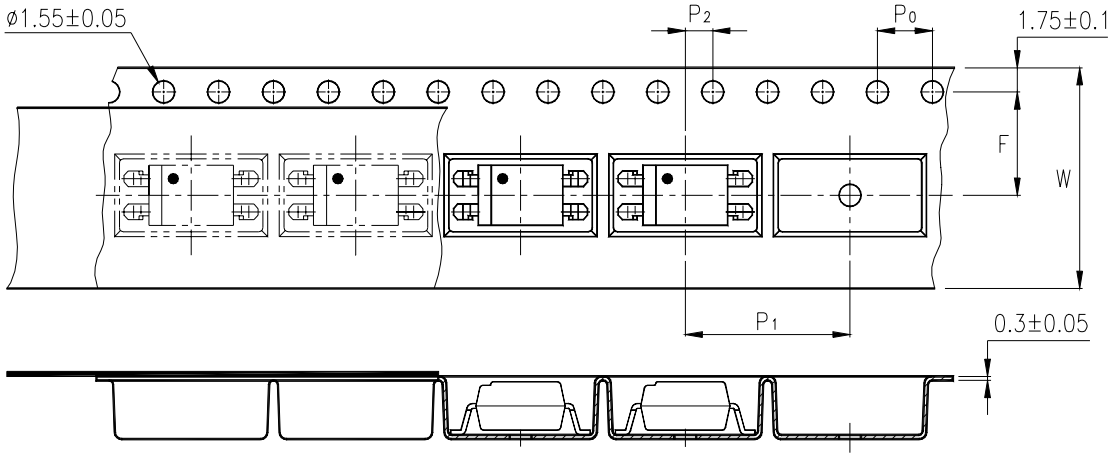
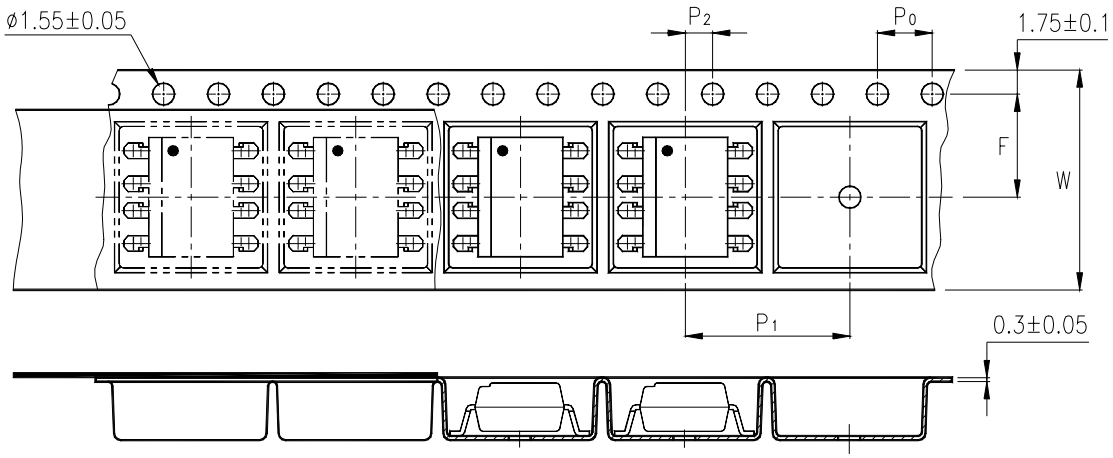
TAPING DIMENSIONS

LTV-814HS-TA1 :



LTV-824HS-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 P_2	7.5 ± 0.1 (.295) 2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	12 ± 0.1 (.472)

ABSOLUTE MAXIMUM RATING

(Ta = 25°C)

PARAMETER		SYMBOL	RATING	UNIT
INPUT	Forward Current	I_F	±150	mA
	Power Dissipation	P	230	mW
OUTPUT	Collector - Emitter Voltage	V_{CEO}	35	V
	Emitter - Collector Voltage	V_{ECO}	6	V
	Collector Current	I_C	80	mA
	Collector Power Dissipation	P_C	160	mW
Total Power Dissipation		P_{tot}	320	mW
*1 Isolation Voltage		V_{iso}	5,000	Vrms
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	—	1.4	1.7	V	I_F=±100mA
	Terminal Capacitance	C_t	—	50	400	pF	V=0, f=1KHz
OUTPUT	Collector Dark Current	I_{CEO}	—	—	100	nA	V_{CE}=20V, I_F=0
	Collector-Emitter Breakdown Voltage	BV_{CEO}	35	—	—	V	I_C=0.1mA I_F=0
	Emitter-Collector Breakdown Voltage	BV_{ECO}	6	—	—	V	I_E=10μA I_F=0
TRANSFER CHARACTERISTICS	Collector Current	I_C	20	—	80	mA	I_F=±100mA V_{CE}=2V
	* Current Transfer Ratio	CTR	20	—	80	%	
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	0.1	0.2	V	I_F=±100mA I_C=1mA
	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	15	80	—	KHz	V_{CE}=5V, I_C=2mA R_L=100Ω, -3dB
	Response Time (Rise)	t_r	—	4	18	μs	V_{CE}=2V, I_C=2mA R_L=100Ω
	Response Time (Fall)	t_f	—	3	18	μs	

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

CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

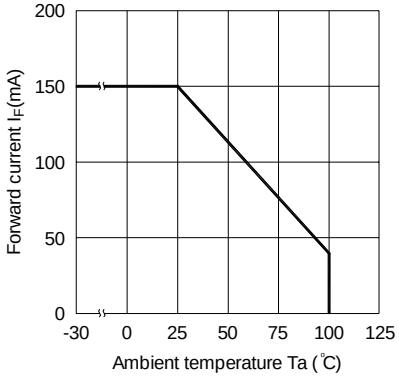


Fig.2 Collector Power Dissipation vs. Ambient Temperature

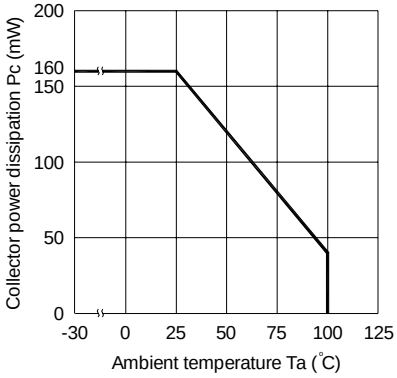


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

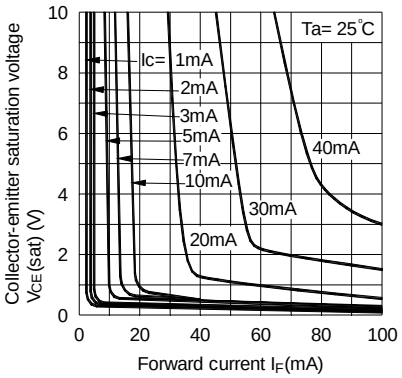


Fig.4 Forward Current vs. Forward Voltage

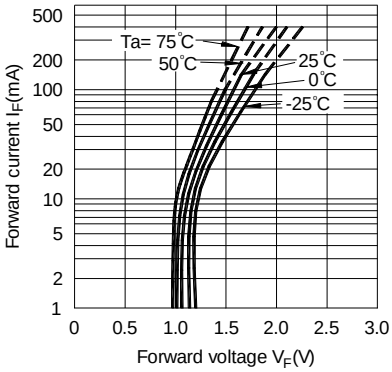


Fig.5 Current Transfer Ratio vs. Forward Current

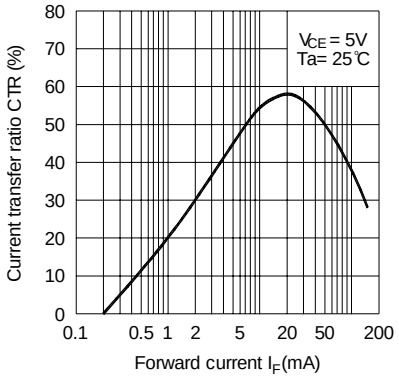
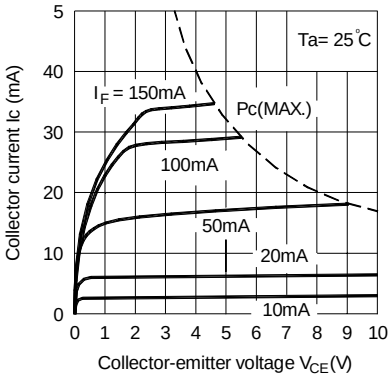


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTICS CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

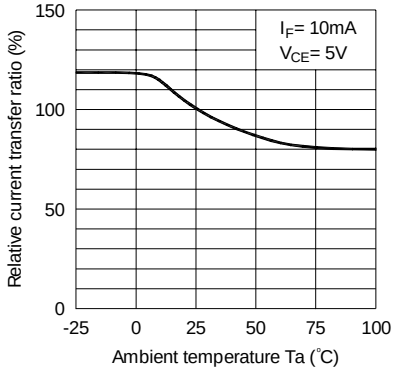


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

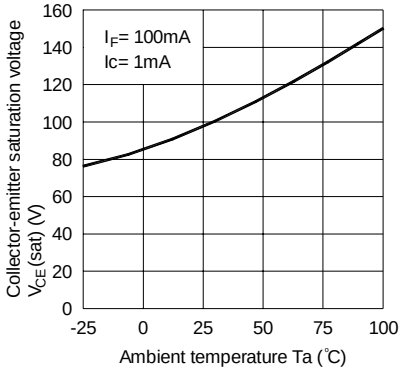


Fig.9 Collector Dark Current vs. Ambient Temperature

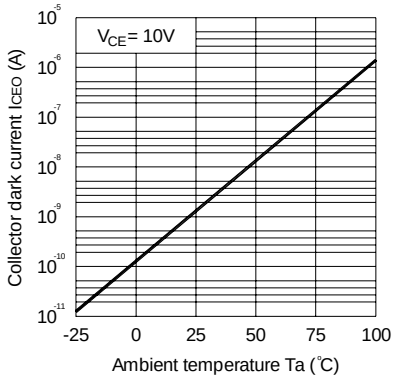


Fig.10 Response Time vs. Load Resistance

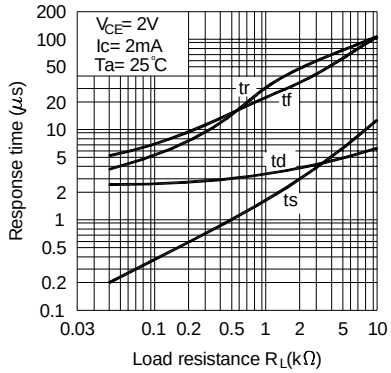
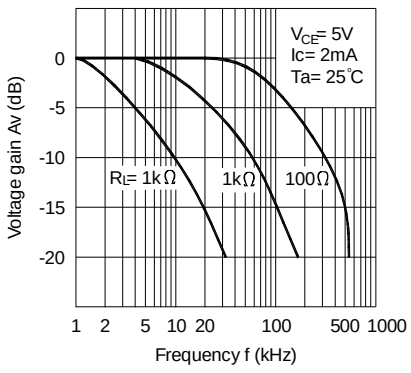
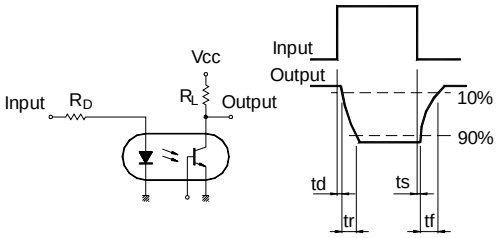


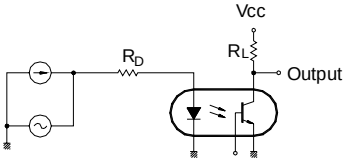
Fig.11 Frequency Response



Test Circuit for Response Time



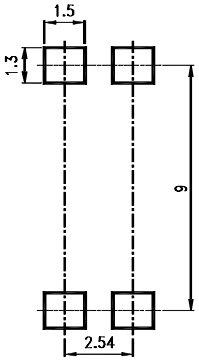
Test Circuit for Frequency Response



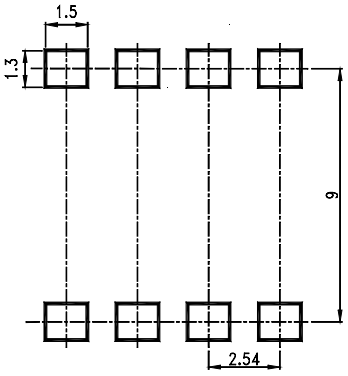
RECOMMENDED FOOT PRINT PATTERNS (MOUNT PAD)

Unit : mm

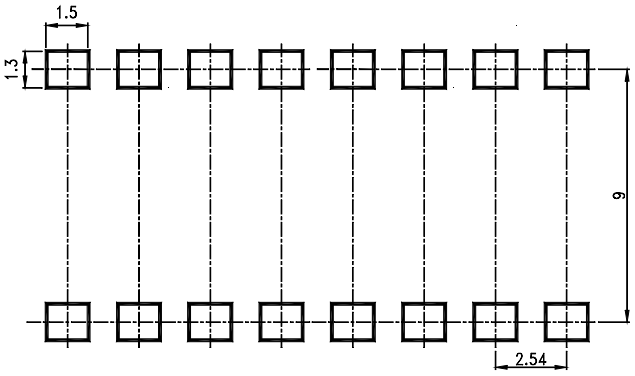
4 PIN



8 PIN



16 PIN



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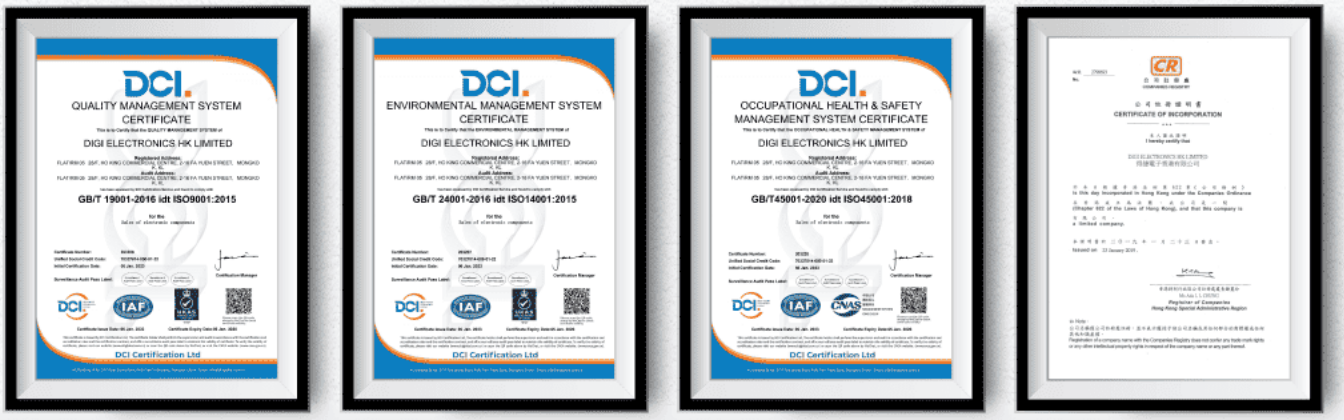

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