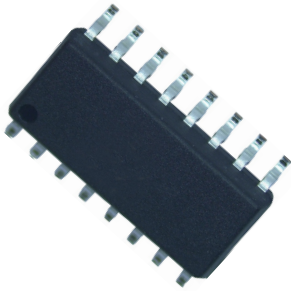


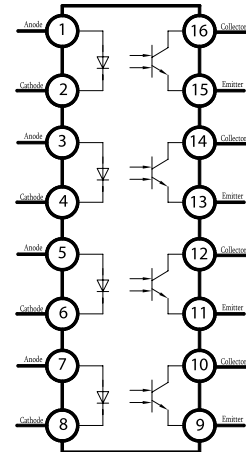
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Features:

- Current transfer ratio
- (CTR: 50~600% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
- High isolation voltage between input and output ($V_{ISO} = 3750\text{Vrms}$)
- Collector - emitter breakdown voltage $BV_{CEO} \geq 80\text{V}$
- Operating Temperature: -55°C to 110°C

**RoHS
Compliant**



Applications:

- DC-DC converter
- Communication equipment
- Programmable controller
- Signal transmission

Mechanical Data

- Case: SSOP16
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Maximum Ratings: @ $T_A 25^\circ\text{C}$ unless otherwise specified.

Parameter		Symbol	Value	Unit
Input	Forward Current	I_F	50	mA
	Peak Forward Current *1	I_{FP}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	70	mW
Output	Collector Power Dissipation	P_C	150	mW
	Collector Current	I_C	50	mA
	Collector-Emitter Voltage	V_{CEO}	80	V
	Emitter-Collector Voltage	V_{ECO}	7	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
Total Power Dissipation	P_{TOT}	200	mW
Isolation Voltage *2	V_{ISO}	3750	Vrms
Operating Temperature	T_{OPR}	$-55 \sim +110$	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +125$	$^\circ\text{C}$
Soldering Temperature *3	T_{SOL}	260	$^\circ\text{C}$

Notes

1. Pulse width $\leq 1\mu\text{s}$, Duty ratio: 0.001
2. 40 to 60% RH, AC for 1 minute
3. For 10 seconds

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Electrical Characteristics @ TA = 25°C unless otherwise specified

	Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V _F	I _F = 20mA	-	1.2	1.4	V
	Reverse Current	I _R	I _R =4μA	-	-	10	μA
	Terminal Capacitance	C _t	V = 0V, f = 1kHz	-	30	250	pF
Output	Collector-Emitter Dark Current	I _{CEO}	V _{CE} = 20V, I _F = 0	-		100	mA
	Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C = 0.1mA, I _F = 0	80	-	-	V
	Emitter-Collector Breakdown Voltage	BV _{ECO}	I _E = 10μA, I _F = 0	7	-	-	V
Transfer Characteristics	Current Transfer Ratio	CTR	I _F = 5 mA, V _{CE} = 5V	50	-	600	%
	Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _F = 10mA, I _C = 1mA	-	0.1	0.2	V
	Isolation Resistance	R _{ISO}	V _{IO} = 500V DC 40~60% R.H.	5×10 ¹⁰	1×10 ¹¹	80	%
	Floating Capacitance	C _f	V = 0, f = 1MHz	-	0.3	1	pF
	Turn On Time	T _{on}	V _{CE} =2V, R _L = 100Ω I _C =2mA	-	5	18	μs
	Turn Off Time	T _{off}		-	3	18	

Switching Characteristics: (@ TA = 25°C - 100°C, V_{CC} = 5V, I_F = 16mA, unless otherwise specified)

Parameter		Symbol	Test conditions	Min.	Typ.	Max.	Unit
Propagation Delay Time to Output HIGH Level		T _{PLH}	I _F =16mA, R _L =1.9kΩ, T _A =25°C	-	150	800	ns
			I _F =16mA, R _L =1.9kΩ			800	
Propagation Delay Time to Output Low Level		T _{PHL}	I _F =16mA, R _L =1.9kΩ, T _A =25°C	-	200	800	
			I _F =16mA, R _L =1.9kΩ			800	
Common Mode Transient Immunity(at Logic High	M501	C _{MH}	T _A =25°C, I _F =0mA V _{CM} =10V(Peak) C _L =15pF, R _L =1.9KΩ	5000	-	-	V/μs
	M511		T _A =25°C, I _F =0mA V _{CM} =1500V (Peak) C _L =15pF, R _L =1.9KΩ	15000	-	-	
Common Mode Transient Immunity (at Logic Low)	M501	C _{ML}	T _A =25°C, I _F =16mA V _{CM} =10V (Peak) C _L =15pF, R _L =1.9KΩ	50000	-	-	
	M511		T _A =25°C, I _F =16mA V _{CM} =1500V (Peak) C _L =15pF, R _L =1.9KΩ	15000	-	-	

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Ratings and Characteristics Curves: (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Fig.1 Relative Current Transfer Ratio vs. Forward Current

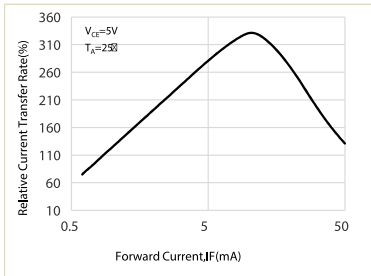


Fig.2 Forward Current vs. Forward Voltage

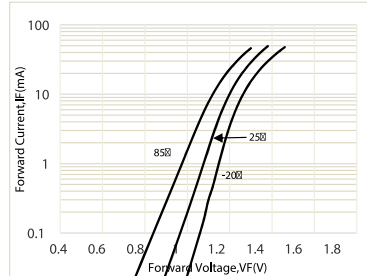


Fig.3 Collector Current vs. Collector-emitter Voltage

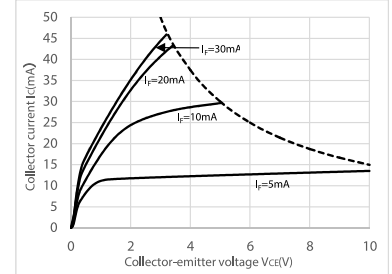


Fig.4 Relative Current Transfer Ratio vs. Ambient Temperature

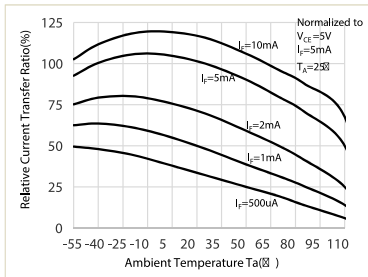


Fig.5 Collector-emitter Saturation Voltage vs. Ambient Temperature

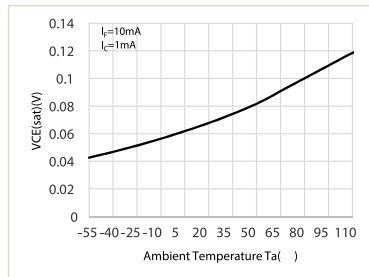


Fig.6 Collector Dark Current vs. Ambient Temperature

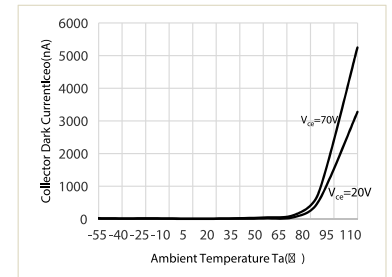


Fig.7 Response Time vs. Load Resistance

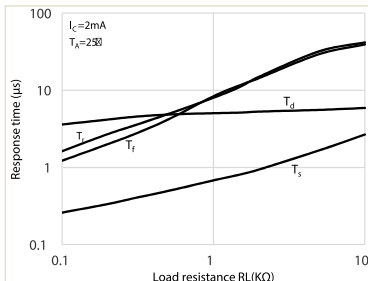


Fig.8 Frequency Response

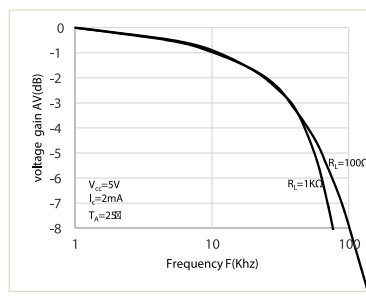


Fig.9 Collector-emitter Saturation Voltage vs. Forward Current

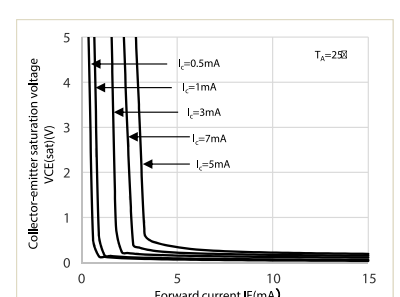
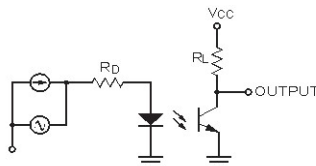
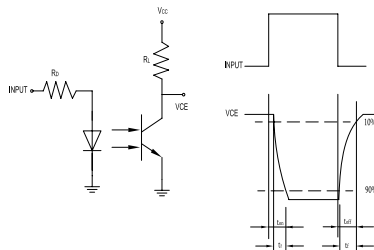
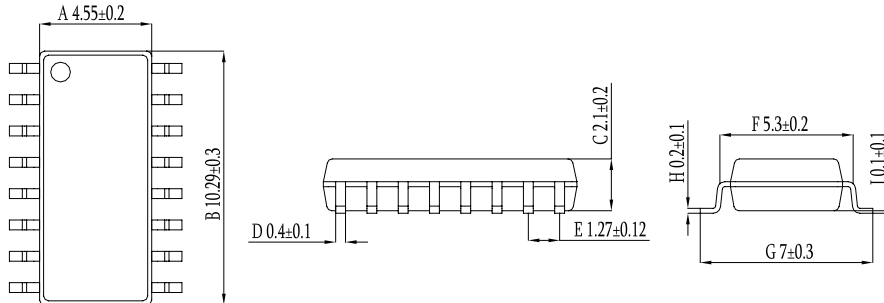


Fig.10 Switching Time Test Circuit & Waveforms



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Outline Dimensions



Part Number Table

Description	Part Number
Optocoupler, Phototransistor, 50mA, 6V, 3750Vrms, SSOP16	BLQ3H7

Dimensions : Millimetres

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