

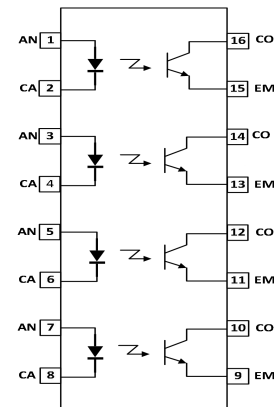


Transistor Optocouplers

Description

The JOC247 devices consist of an infrared emitting diode, optically coupled to a phototransistor detector encapsulated with green compound. They are packaged in a 16-pin small outline SSOP package.

Block Diagram and Package



- 1,3,5,7: Anode
- 2,4,6,8: Cathode
- 9,11,13,15: Emitter
- 10,12,14,16: Collector

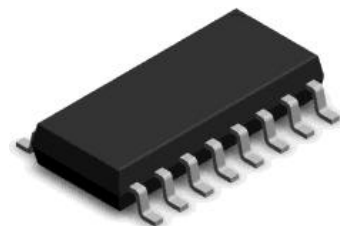
Features

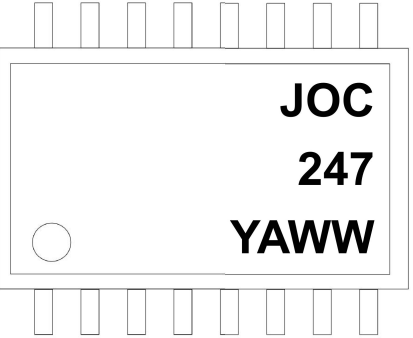

- Current transfer ratio: 50%~600% (IF=5mA, VCE=5V)
- Input-output isolation voltage (Viso=3750 V rms)
- Creepage distance ≥ 5mm
- External electrical clearance ≥ 5mm
- DTI ≥ 0.3mm

Applications

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

PACKAGE OUTLINE



ORDERING AND MARKING INFORMATION	
	<p>JOC : Company Abbr. 247 : Part Number Y : Fiscal Year A : Manufacturing Code WW : Work Week</p>
ORDERING INFORMATION	LABEL INFORMATION
<p style="text-align: center;">JOC247(Y)(Z)-G</p> <p>JOC – Company Abbr 247 – Part Number Y – Lead Form Option (SL/None) Z – Tape and Reel Option (T1/T2) G – Green</p>	

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I _F	50	mA
	Peak forward current (1us , pulse)	I _{FP}	1	A
	Reverse Voltage	V _R	6	V
	Power dissipation	P _D	70	mW
Output	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
Total Power Dissipation		P _{tot}	200	mW
Isolation Voltage		V _{iso}	3750	V _{Rms}
Operating temperature		T _{opr}	-55 ~ +110	°C
Storage temperature		T _{stg}	-55 ~ +125	°C
Soldering Temperature		T _{sol}	260	°C

Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Condition	Min	Typ	Max	Unit
Input	Forward Voltage	V_F	$I_F=20\text{mA}$	-	1.2	1.4	V
	Reverse Current	I_R	$V_R=4\text{V}$	-	-	10	μA
	Terminal Capacitance	C_t	$V=0, f=1\text{kHz}$	-	30	250	pF
Output	Collector Dark Current	I_{CEO}	$V_{CE}=20\text{V}$	-	-	100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=0.1\text{mA}, I_F=0$	80	-	-	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=0.01\text{mA}, I_F=0$	7	-	-	V
Transfer Characteristics	Current Transfer Ratio	CTR	$I_F=5\text{mA}, V_{CE}=5\text{V}$	50	-	600	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F=10\text{mA}, I_C=1\text{mA}$	-	0.1	0.2	V
	Isolation Resistance	R_{ISO}	DC500V, 40~60%R.H.	5×10^{10}	1×10^{11}	-	Ω
	Floating Capacitance	C_f	$V=0, f=1\text{MHz}$	-	0.3	1.0	pF
	Rise Time	T_r	$V_{CE}=2\text{V}$ $I_C=2\text{mA}, R_L=100\Omega$	-	5	18	μs
	Fall Time	T_f		-	3	18	μs

* $CTR = I_C / I_F \times 100\%$

Typical Performance Curves

Fig.1 Test Circuits

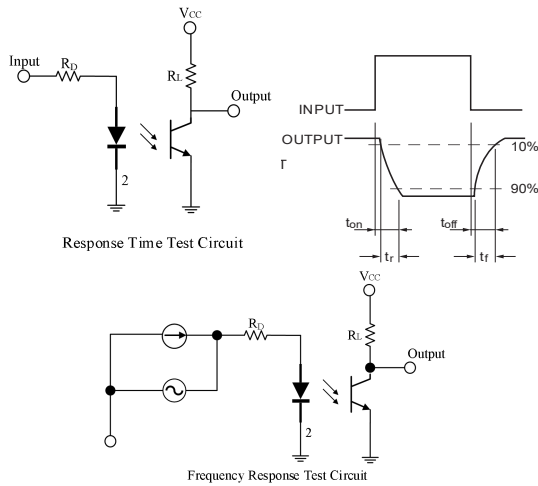


Fig.2 CTR vs Forward Current

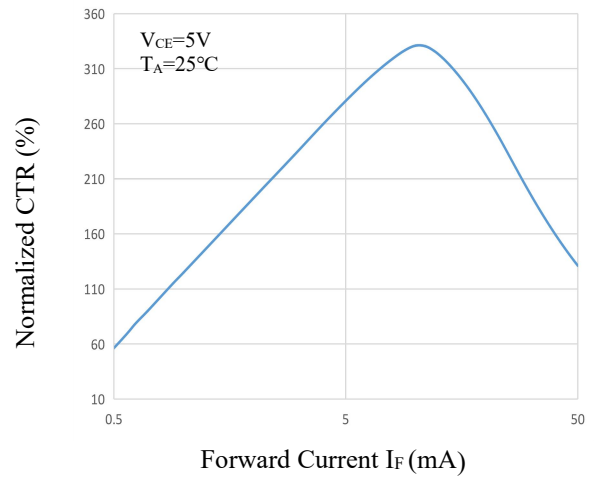


Fig.3 Forward Current vs Forward Voltage

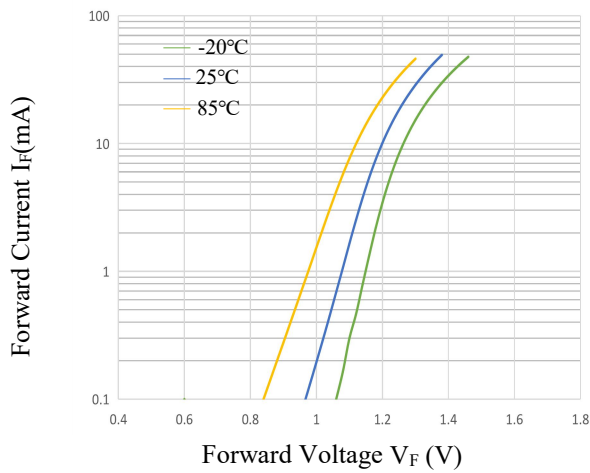


Fig.4 Collector Current vs Collector Emitter voltage

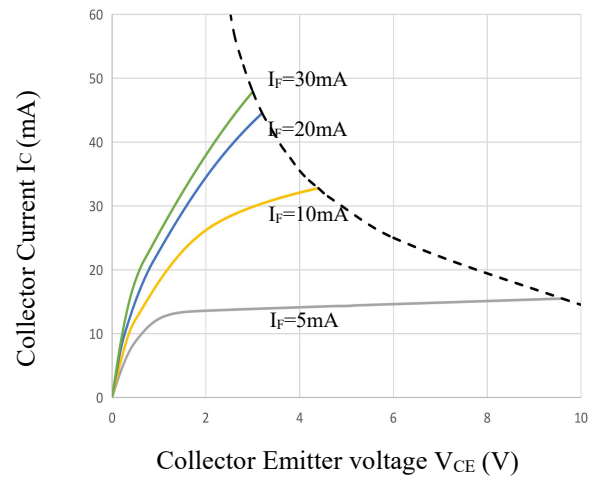


Fig.5 Relative Current Transfer Ratio vs Ambient Temperature

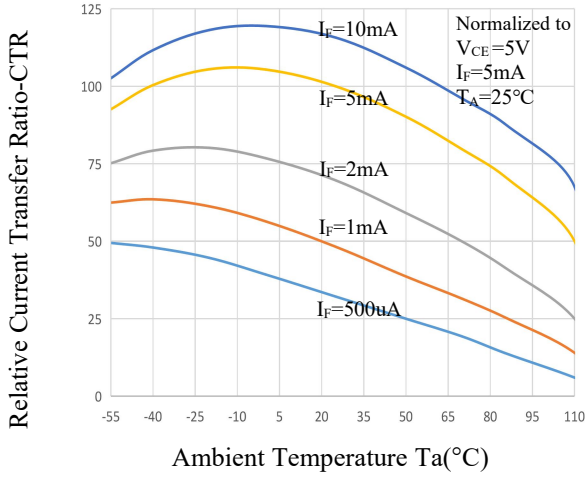


Fig.6 Collector-Emitter Saturation Voltage vs Ambient Temperature

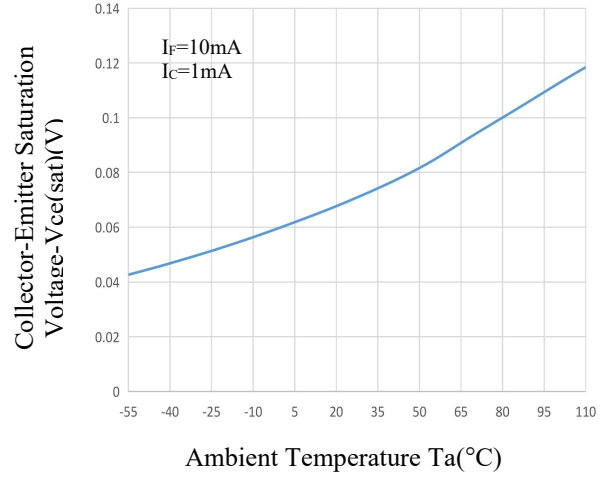


Fig.7 Collector dark current vs Ambient Temperature

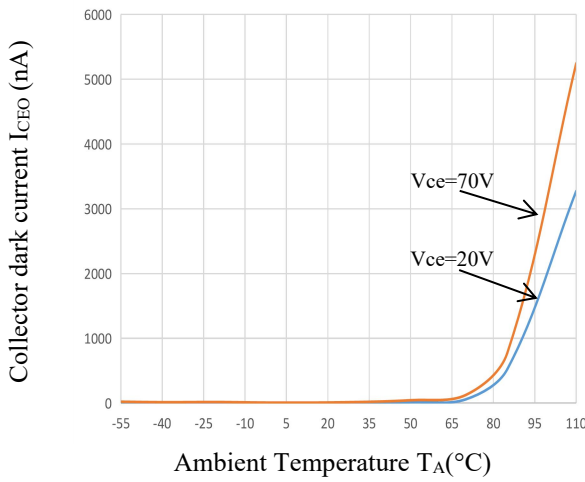


Fig.8 Response time vs Load Resistance

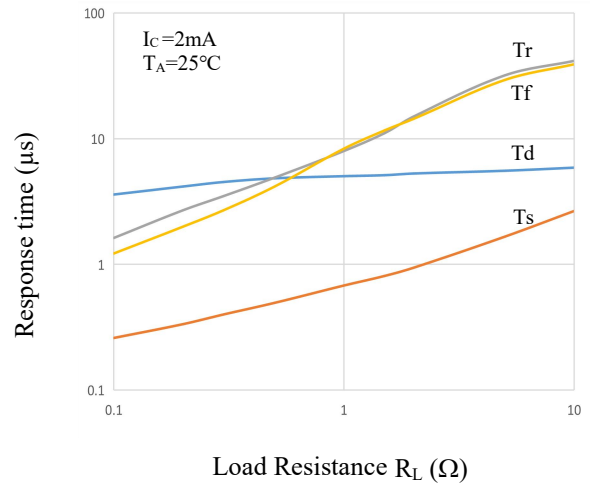


Fig.9 Frequency Response

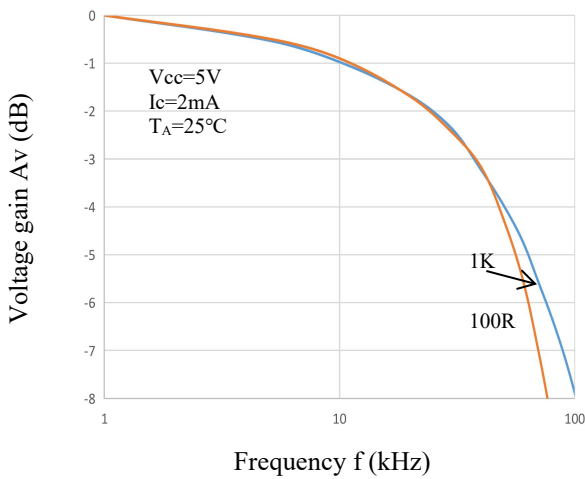
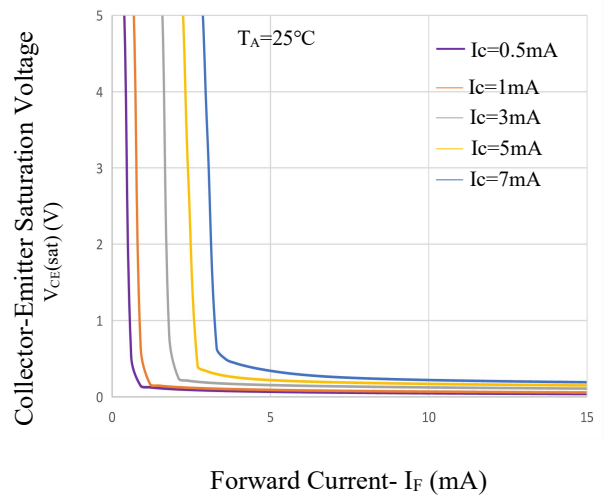
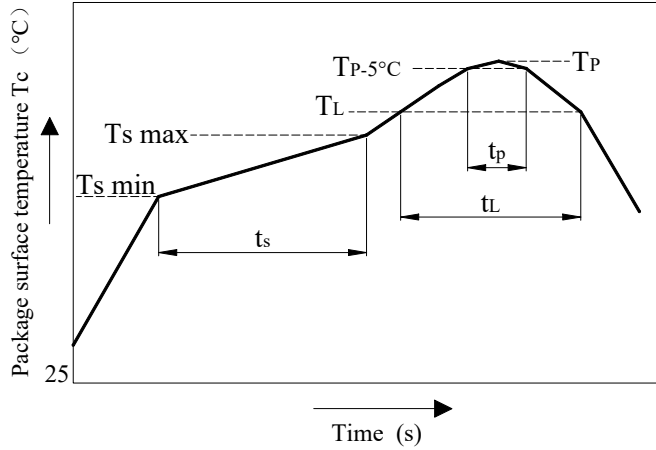


Fig.10 Collector-Emitter Saturation Voltage vs Forward Current



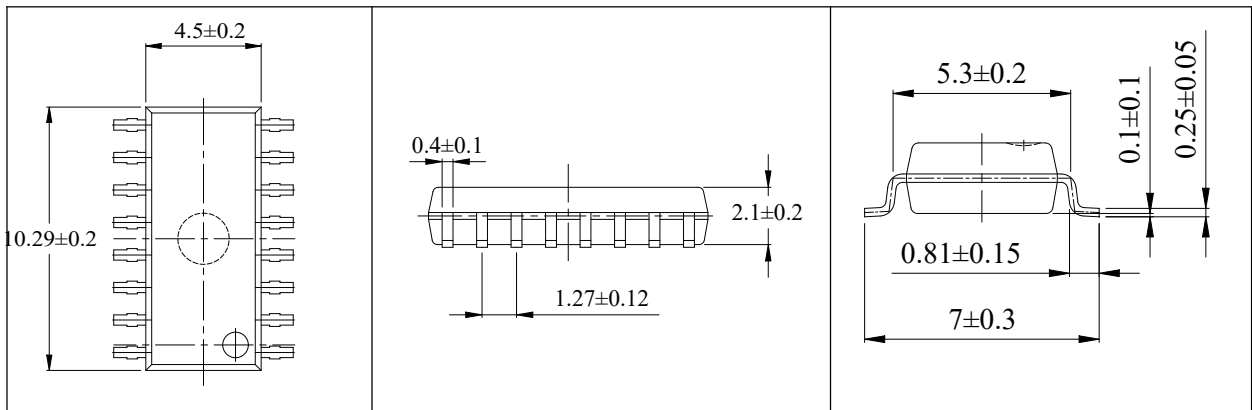
Solder Reflow Profile



	Symbol	Min	Max	Unit
Preheat temperature	Ts	150	200	°C
Preheat time	ts	60	120	s
Ramp-up rate(TL to TP)			3	°C/s
Liquidus temperature	TL	217		°C
Time above TL	tL	60	150	s
Peak temperature	TP		260	°C
Time during which Tc is between (TP-5) and TP	tp		30	s
Ramp-down rate(TP to TL)			6	°C/s

- Note:
1. Reflow soldering is recommended at the temperatures and times shown, no more than three times;
 2. Soldering with hand soldering iron
 - A. Hand soldering iron is only used for product rework or sample testing;
 - B. Manual soldering method Temperature: 360°C ± 5°C, within 3s.

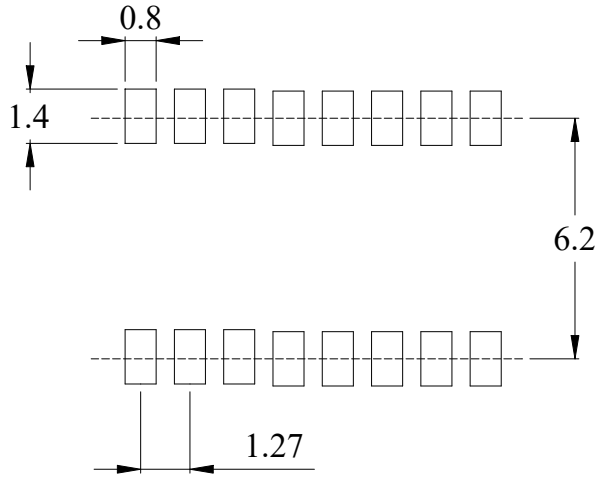
Package Dimensions



16-pin SSOP

Unit: mm

Land Pattern Dimensions (for reference only)



Note: Unit (mm), the picture above is the front view of the product.

Packing

■ Summary table

Package Type	Packing Form	Quantity per Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification	Box Specification	Carton Specification	Note
SSOP-16	Reel(ϕ 33 Blue)	2K pcs/reel	2reels /box	10boxes /ctn	430*400*0.075mm	34*6*34	38*36*36.5	There are 50 Spaces at the beginning and 100 Spaces at the end

■ SSOP-16(Reel)

- 1) Qty/ctn: 40000 pcs
- 2) Qty/reel: 2000 pcs
- 3) Inner packing: 2 reels/box
- 4) Schematic: (Unit: mm)

