



JOC244 Series

Phototransistor Optocouplers

Description

JOC244 is a four channel optocoupler composed of LED and phototransistor. It is packaged in a 16-pin package.

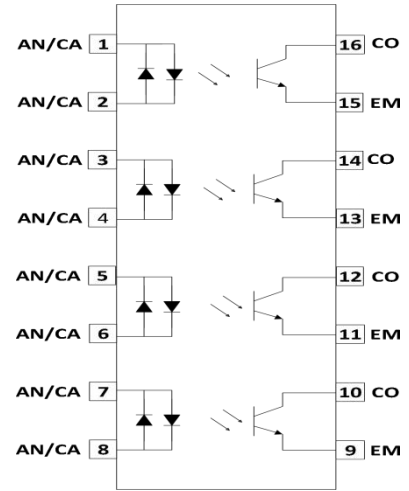
Features

- Current transfer ratio: $\geq 20\%$ ($I_F = \pm 1\text{mA}, V_{CE} = 5\text{V}$)
- Input-output isolation voltage ($V_{iso} = 3750\text{ V rms}$)
- Collector-Emitter Breakdown Voltage $BV_{CEO} \geq 80\text{V}$
- Creepage distance $\geq 5\text{mm}$
- External electrical clearance $\geq 5\text{mm}$
- $DTI \geq 0.3\text{mm}$

Applications

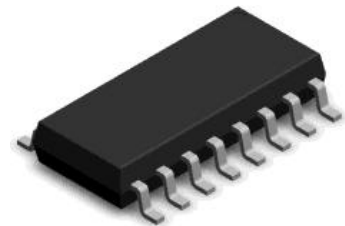
- Switching power supply; Smart meter
- Industrial Control; Measuring Instruments
- Office equipment, such as photocopier
- Household appliances, such as air conditioners, fans, water heaters, etc.

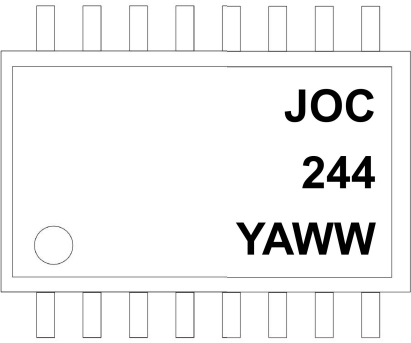

Block Diagram and Package



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

PACKAGE OUTLINE



ORDERING AND MARKING INFORMATION	
	<p>JOC : Company Abbr. 244 : Part Number Y : Fiscal Year A : Manufacturing Code WW : Work Week</p>
ORDERING INFORMATION	LABEL INFORMATION
<p>JOC244(Y)(Z)-G JOC – Company Abbr 244 – 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
	Power dissipation	P _D	70	mW
	Power dissipation Derating factor (above Ta = 100°C)	P _{DD}	2.9	mW/°C
	Thermal Resistance Junction-Ambient	R _{thJ-A}	325	°C/W
	Thermal Resistance Junction-Case	R _{thJ-C}	200	°C/W
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~+100	°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	$I_F = \pm 20\text{mA}$	-	1.2	1.4	V
	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}	$I_E=10\mu\text{A}, I_F=0$	7	-	-	V
Transfer Characteristics	Current Transfer Ratio	CTR	$I_F = \pm 1\text{mA}, V_{CE}=5\text{V}$	20	-	300	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = \pm 20\text{mA}, I_C=1\text{mA}$	-	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	$V=0, f=1\text{MHz}$	-	0.6	1.0	pF
	Cut-off Frequency	F_c	$V_{CE}=5\text{V}, I_C=2\text{mA}, R_L=100\Omega, -3\text{dB}$	-	80	-	kHz
	Rise Time	T_r	$V_{CE}=2\text{V}, I_C=2\text{mA}, R_L=100\Omega$	-	-	18	μs
	Fall Time	T_f	$V_{CE}=2\text{V}, I_C=2\text{mA}, R_L=100\Omega$	-	-	18	μs

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

Typical Performance Curves

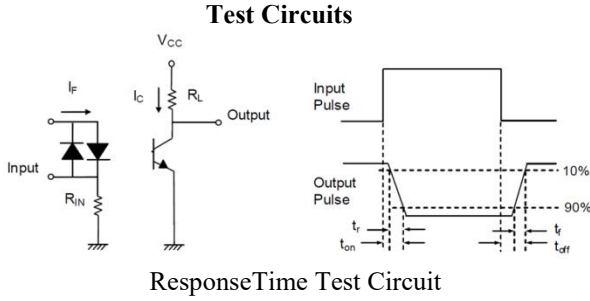


Fig.1 Normalized CTR vs Forward Current

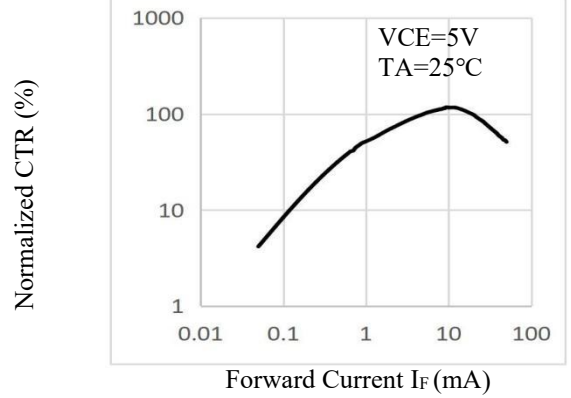


Fig.2 Forward Current vs Forward Voltage

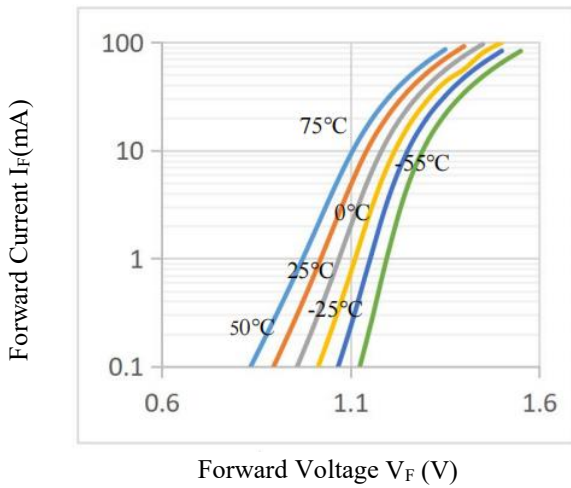


Fig.3 Collector Current vs Collector Emitter voltage

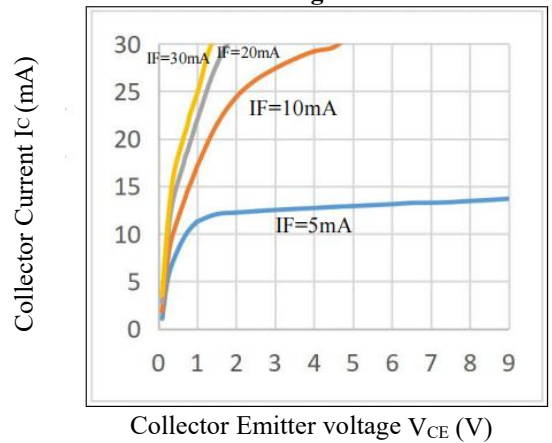


Fig.4 Curve of relative current conversion ratio vs ambient temperature

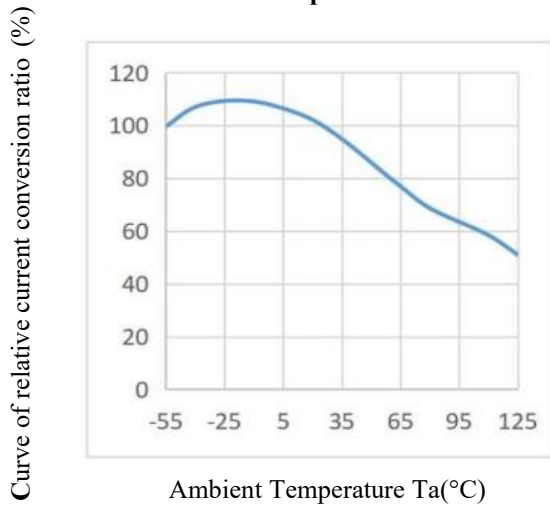


Fig.5 Saturation pressure drop vs ambient temperature

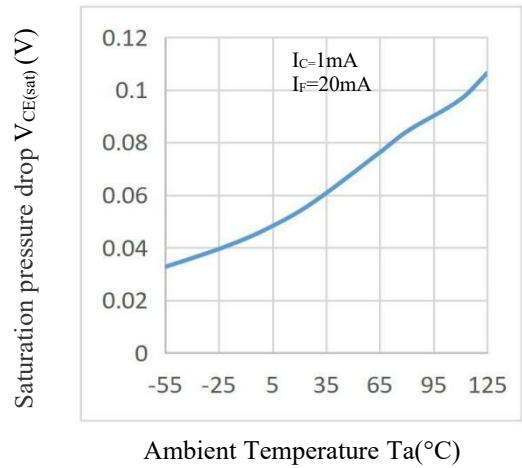


Fig.6 Collector dark current vs Ambient Temperature

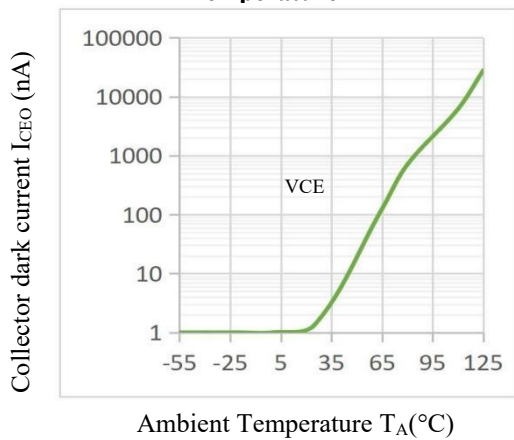


Fig.7 Response time vs Load Resistance

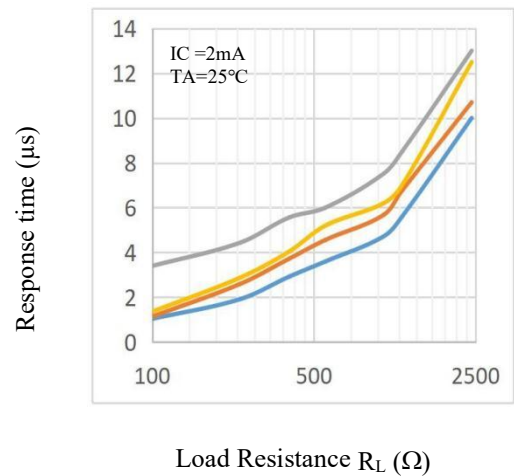


Fig.8 Voltage gain vs Frequency

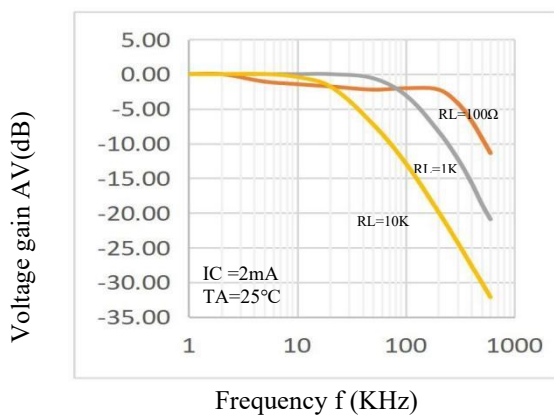
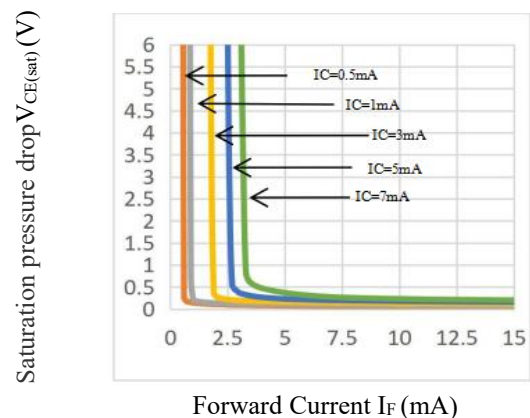
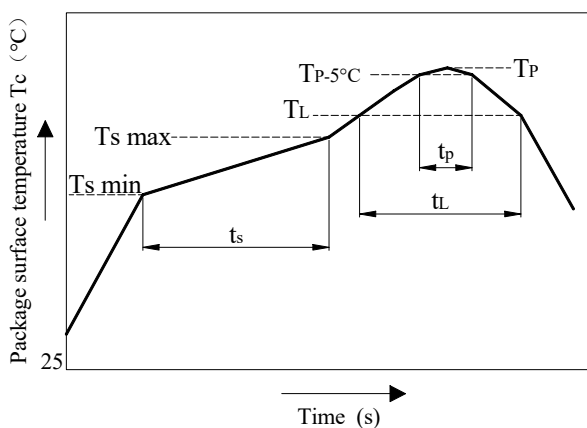


Fig.9 Saturation pressure drop vs Forward Current



Solder Reflow Profile

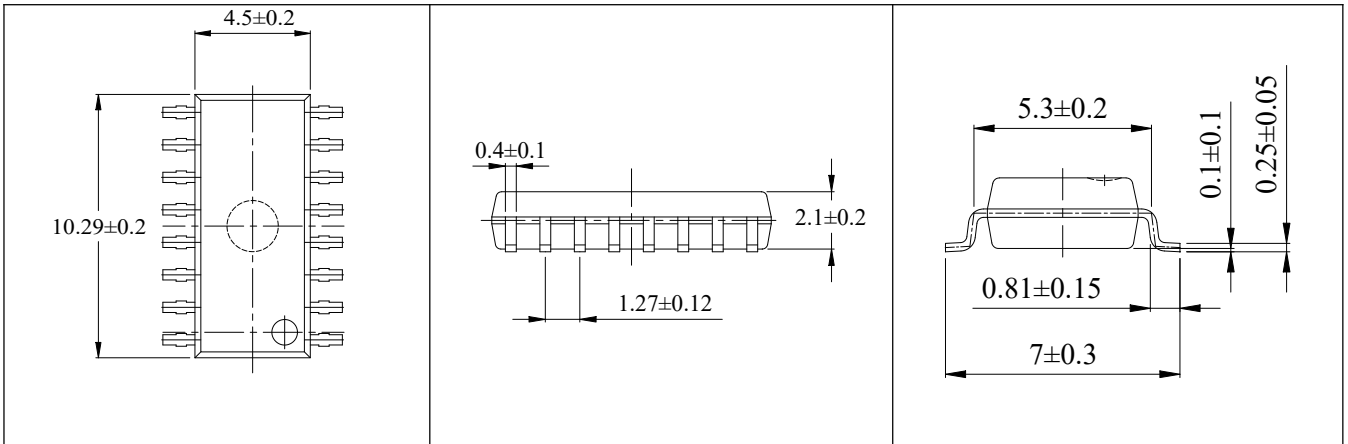


	Symbol	Min	Max	Unit
Preheat temperayure	T _s	150	200	°C
Preheat time	t _s	60	120	s
Ramp-up rate(T _L to T _P)			3	°C/s
Liquidus temperature	T _L	217		°C
Time above T _L	t _L	60	150	s
Peak temperature	T _P		260	°C
Time during which T _c is between (T _P -5) and T _P	t _p		30	s
Ramp-down rate(T _P to T _L)			6	°C/s

Note: 1. It is recommended to conduct reflow welding at the temperature and time shown, which shall not exceed three times at most;
 2. Manual soldering iron welding
 A. Manual soldering is only used for product repair or sample test;
 B. Requirements for manual soldering: temperature 360 °C± 5 °C, time ≤ 3s

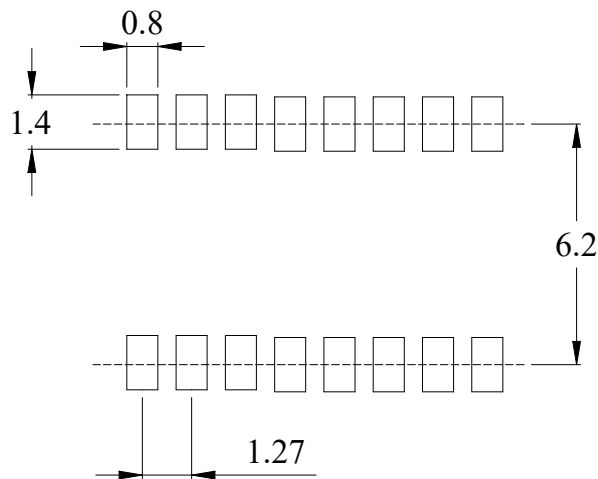
Package Dimensions

Unit: mm



16-pin SSOP

Land Pattern Dimensions (for reference only)



Note: Unit: mm. The above figure is the front view of the product.

Packing

■ Summary

Package Type	Packing Form	Quantity per Reel	Quantity per Box	Quantity per Carton	Antistatic Bag Specification(cm)	Box Specification(cm)	Carton Specification(cm)	Note
SSOP-16	Reel(ϕ 33blue disc)	2k pcs/reel	2Reel/box	10box/ctn	430*400*0.075mm	34*6*34	38*36*36.5	50 empty at the head end Lattice, empty end 100

- SSOP-16 ribbon packaging
- 1) Quantity per box: 40000 pieces.
 - 2) Quantity of each roll: 2000.
 - 3) Inner package: 2 rolls per box.
 - 4) Schematic Diagram: (Unit: mm)

