

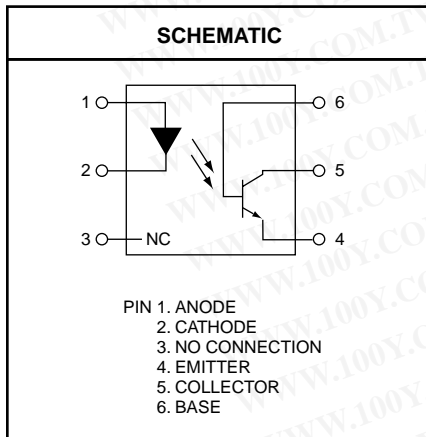
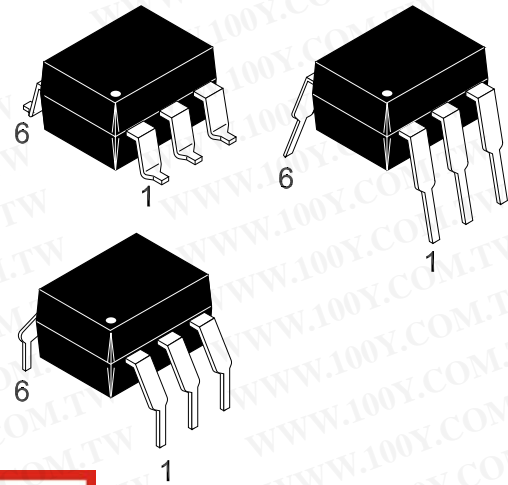
MOC8204

DESCRIPTION

The MOC8204 device consists of a gallium arsenide infrared emitting diode optically coupled to a high voltage, silicon, phototransistor detector in a standard 6-pin DIP package. It is designed for high voltage applications and is particularly useful in copy machines and solid state relays.

APPLICATIONS

- Copy Machines
- Interfacing and coupling systems of different potentials and impedances
- Monitor and Detection Circuits
- Solid State Relays



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Parameter	Symbol	Value	Units
TOTAL DEVICE			
Storage Temperature	T_{STG}	-55 to +150	°C
Operating Temperature	T_{OPR}	-55 to +100	°C
Lead Solder Temperature	T_{SOL}	260 for 10 sec	°C
Input-Output Isolation Voltage Peak ac Voltage, 60 Hz, 1 Second Duration ⁽¹⁾	V_{ISO}	7500	Vac(pk)
Total Device Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	250 2.94	mW
EMITTER			
DC/Average Forward Input Current	I_F	60	mA
Forward Current - Peak (Pulse Width = 1µs, 330 pps)	$I_F(pk)$	1.2	A
LED Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	120 1.41	mW mW/°C
DETECTOR			
Collector-Emitter Voltage	V_{CEO}	400	V
Collector-Base Voltage	V_{CBO}	400	V
Emitter-Collector Voltage	V_{ECO}	7	V
Detector Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	150 1.76	mW mW/°C

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)

INDIVIDUAL COMPONENT CHARACTERISTICS

Parameter	Test Conditions	Symbol	Min	Typ ⁽¹⁾	Max	Unit
EMITTER						
Input Forward Voltage	($I_F = 10\text{ mA}$)	V_F	—	1.2	15	V
Reverse Leakage Current	($V_R = 6.0\text{ V}$)	I_R	—	—	10	μA
Capacitance	($V = 0, f = 1\text{ MHz}$)	C_J	—	18	—	pF
DETECTOR						
Collector-Emitter Breakdown Voltage ($I_C = 1.0\text{ mA}, R_{BE} = 1\text{ M}\Omega$)		BV_{CEO}	400	—	—	V
Collector-Base Breakdown Voltage ($I_C = 100\text{ }\mu\text{A}$)		BV_{CBO}	400	—	—	V
Emitter-Base Breakdown Voltage ($I_E = 100\text{ }\mu\text{A}$)		BV_{EBO}	7	—	—	V
Collector-Emitter Dark Current		I_{CEO}	—	—	100	nA
$T_A = 25^\circ\text{C}$	($R_{BE} = 1\text{ M}\Omega, V_{CE} = 300\text{ V}$)				250	μA
$T_A = 100^\circ\text{C}$						

ISOLATION CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Min	Typ ⁽¹⁾	Max	Units
Output Collector Current	($V_{CE} = 10\text{ V}, I_F = 10\text{ mA}, R_{BE} = 1\text{ M}\Omega$)	I_C (CTR) ⁽²⁾	2 (20)	—	—	mA(%)
Collector-Emitter Saturation Voltage ($I_C = 0.5\text{ mA}, I_F = 10\text{ mA}, R_{BE} = 1\text{ M}\Omega$)		$V_{(SAT)}$	—	—	0.4	V
Input-Output Isolation Voltage ⁽³⁾	($I_{I-O} \leq 1\text{ }\mu\text{A}, \text{Time} = 1\text{ min}$)	V_{ISO}	5300	—	—	$V_{AC(RMS)}$
			7300	—	—	$V_{AC(PEAK)}$
Isolation Resistance ⁽³⁾		R_{ISO}	—	10^{11}	—	Ω
Isolation Capacitance ⁽¹⁾		C_{ISO}	—	0.2	—	pf
Turn-On Time	($V_{CC} = 10\text{ V}, I_C = 2\text{ mA}, R_L = 100\Omega$)	t_{ON}	—	5	—	μs
Turn-Off Time		t_{OFF}	—	5	—	

Notes

1. Always design to the specified minimum/maximum electrical limits (where applicable).
2. Current Transfer Ratio (CTR) = $I_C / I_F \times 100\%$.
3. For this test LED pins 1 and 2 are common and phototransistor Pins 4,5 and 6 are common.

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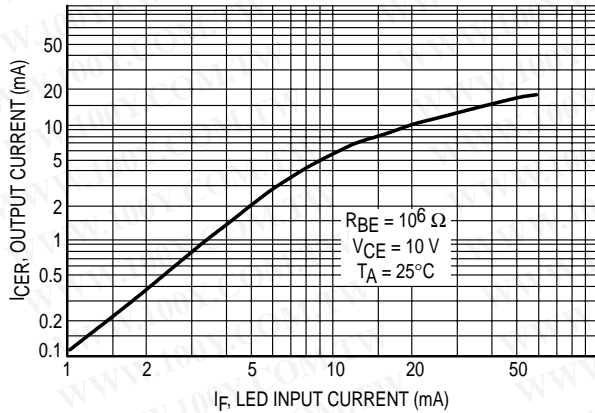


Figure 1. Output Current versus LED Input Current

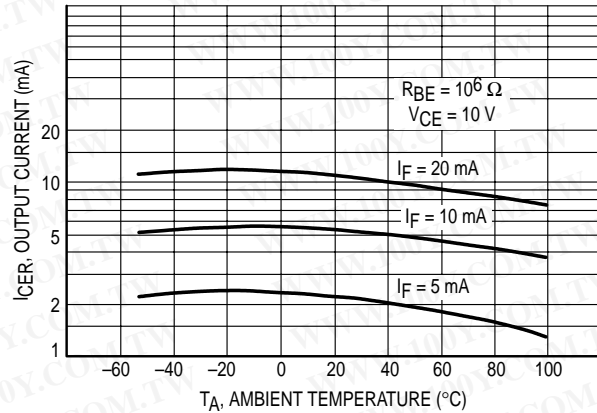


Figure 2. Output Current versus Temperature

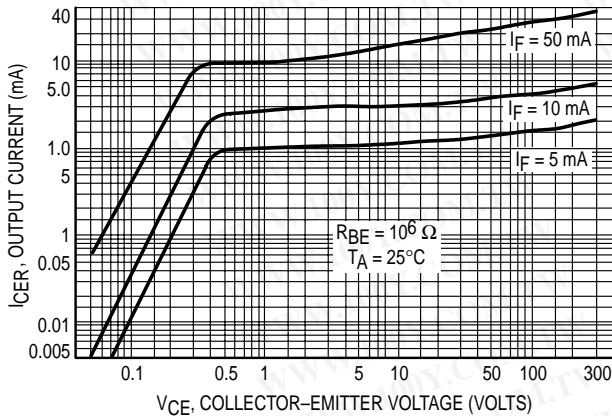


Figure 3. Output Characteristics

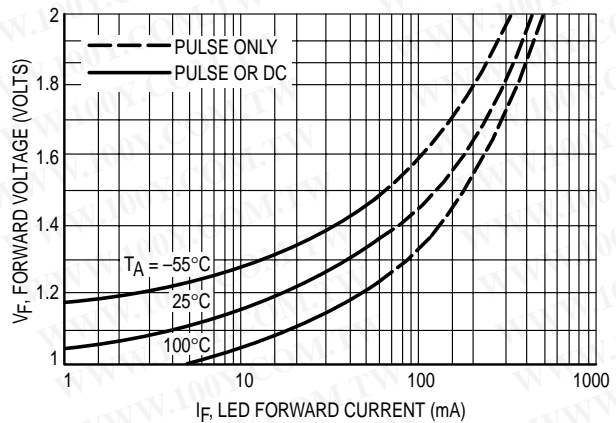


Figure 4. Forward Characteristics

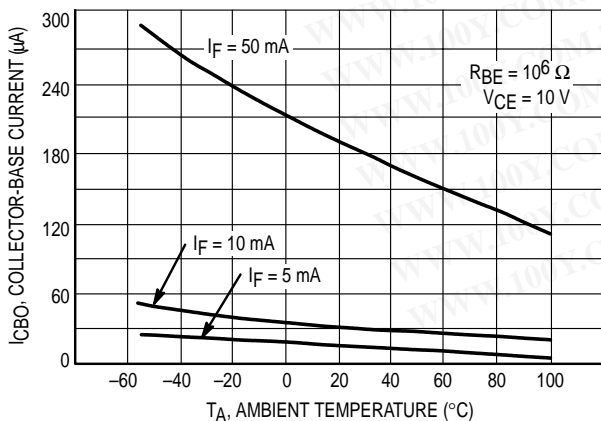


Figure 5. Collector-Base Current versus Temperature

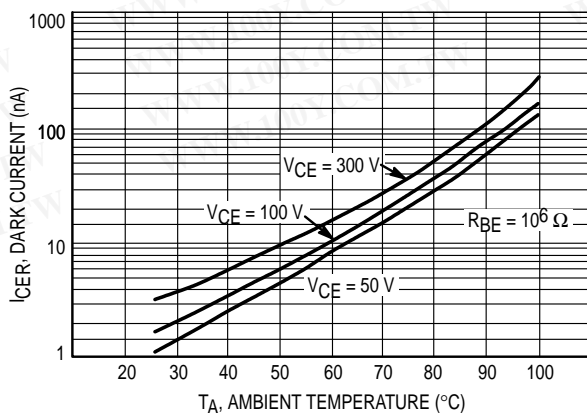
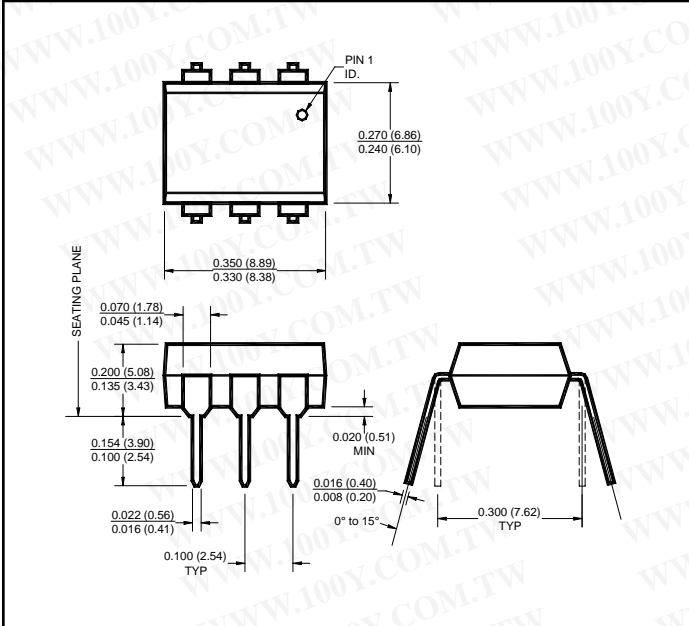


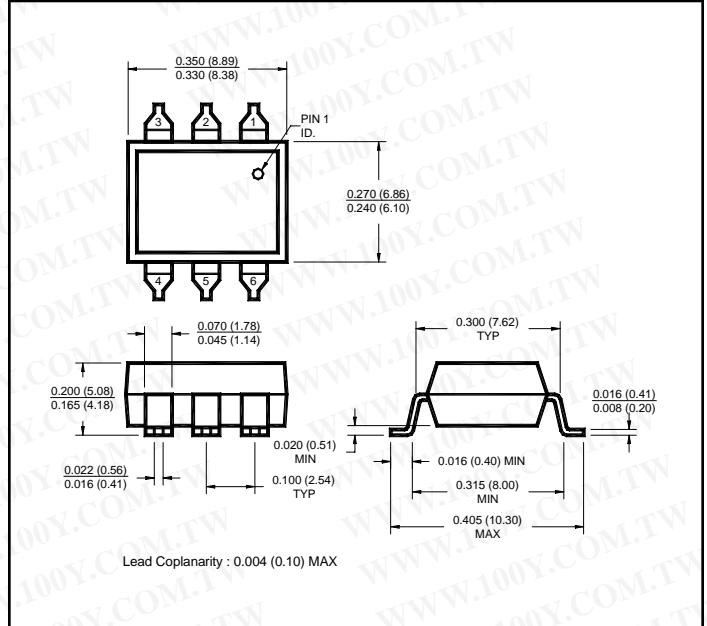
Figure 6. Dark Current versus Temperature

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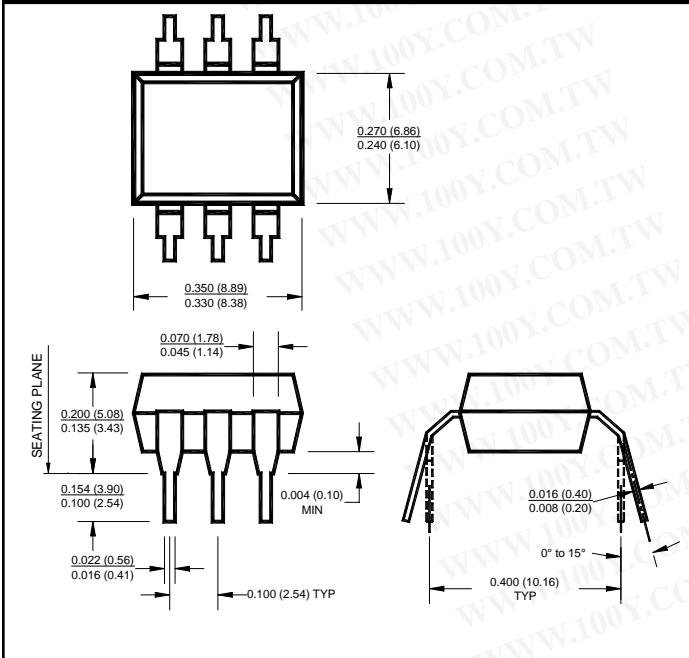
Package Dimensions (Through Hole)



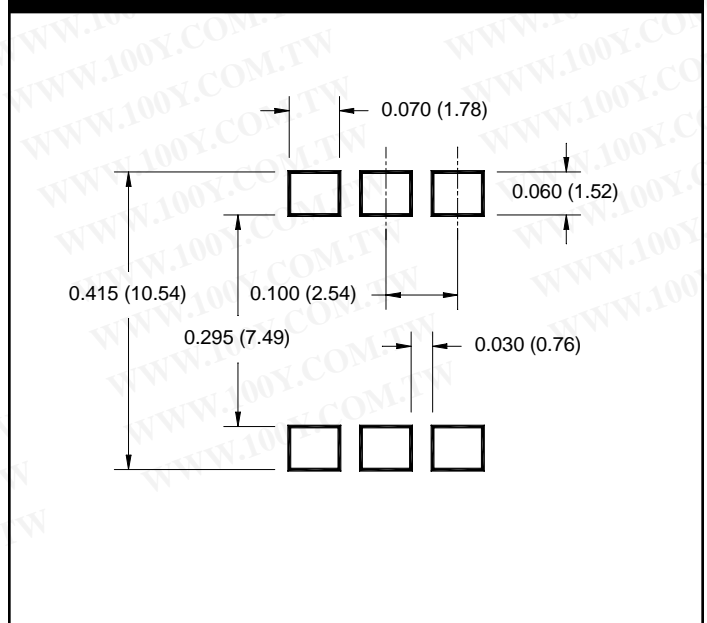
Package Dimensions (Surface Mount)



Package Dimensions (0.4" Lead Spacing)



**Recommended Pad Layout for
Surface Mount Leadform**



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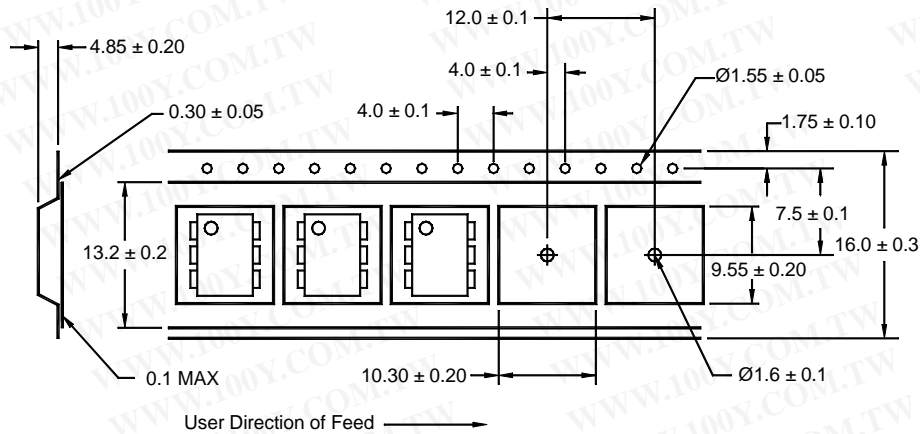
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ORDERING INFORMATION

Option	Order Entry Identifier	Description
R2	.R2	Opto Plus Reliability Conditioning
S	.S	Surface Mount Lead Bend
SD	.SD	Surface Mount; Tape and reel
SDL	.SDL	Surface Mount; Tape and reel
W	.W	0.4" Lead Spacing
300	.300	VDE 0884
300W	.300W	VDE 0884, 0.4" Lead Spacing
3S	.3S	VDE 0884, Surface Mount
3SD	.3SD	VDE 0884, Surface Mount, Tape & Reel

QT Carrier Tape Specifications



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