


Small Outline Optoisolators Darlington Output (No Base Connection)

These devices consist of a gallium arsenide infrared emitting diode optically coupled to a monolithic silicon photodarlington detector, in a surface mountable, small outline, plastic package. No base connection for improved noise immunity.

- Convenient Plastic SOIC-8 Surface Mountable Package Style
- High Current Transfer Ratio (CTR) at Low LED Input Current, for Easier Logic Interfacing
- Standard SOIC-8 Footprint, with 0.050" Lead Spacing
- Shipped in Tape and Reel, which Conforms to EIA Standard RS481A
- Compatible with Dual Wave, Vapor Phase and IR Reflow Soldering
- High Input-Output Isolation of 3000 Vac (rms) Guaranteed
- UL Recognized  File #E54915

Ordering Information:

- To obtain MOC263 in Tape and Reel, add R2 suffix to device numbers:
R2 = 2500 units on 13" reel
- To obtain MOC263 in quantities of 50 (shipped in sleeves) — No Suffix

Marking Information:

- MOC263 = 263

Applications:

- Low Power Logic Circuits
- Interfacing and coupling systems of different potentials and impedances
- Telecommunications equipment
- Portable electronics

MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
INPUT LED			
Forward Current — Continuous	I _F	60	mA
Forward Current — Peak (PW = 100 μs, 120 pps)	I _{F(pk)}	1.0	A
Reverse Voltage	V _R	6.0	V
LED Power Dissipation @ T _A = 25°C Derate above 25°C	P _D	90 0.8	mW mW/°C

OUTPUT DARLINGTON

Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Collector Voltage	V _{ECO}	7.0	V
Collector Current — Continuous	I _C	150	mA
Detector Power Dissipation @ T _A = 25°C Derate above 25°C	P _D	150 1.76	mW mW/°C

NOTE: Thickness through insulation between input and output is ≥ 0.5 mm.

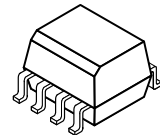
Preferred devices are Motorola recommended choices for future use and best overall value.

MOC263

[CTR = 500% Min]

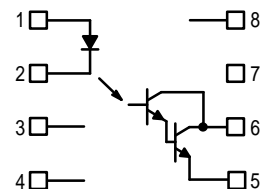
Motorola Preferred Device

SMALL OUTLINE OPTOISOLATORS DARLINGTON OUTPUT NO BASE CONNECTION



CASE 846-01, STYLE 1
PLASTIC

SCHEMATIC



1. LED ANODE
2. LED CATHODE
3. NO CONNECTION
4. NO CONNECTION
5. EMITTER
6. COLLECTOR
7. NO CONNECTION
8. NO CONNECTION

MOC263

MAXIMUM RATINGS — continued ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
TOTAL DEVICE			
Input–Output Isolation Voltage ^(1,2) (60 Hz, 1.0 sec. duration)	V_{ISO}	3000	Vac(rms)
Total Device Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	250 2.94	mW mW/ $^\circ\text{C}$
Ambient Operating Temperature Range ⁽³⁾	T_A	-55 to +100	$^\circ\text{C}$
Storage Temperature Range ⁽³⁾	T_{stg}	-55 to +150	$^\circ\text{C}$
Lead Soldering Temperature (1/16" from case, 10 sec. duration)	—	260	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)⁽⁴⁾

Characteristic	Symbol	Min	Typ ⁽⁴⁾	Max	Unit
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INPUT LED

Forward Voltage ($I_F = 1.0\text{ mA}$)	V_F	—	1.05	1.3	V
Reverse Leakage Current ($V_R = 6.0\text{ V}$)	I_R	—	0.1	100	μA
Capacitance	C	—	18	—	pF

OUTPUT DARLINGTON

Collector–Emitter Dark Current ($V_{CE} = 5.0\text{ V}$, $T_A = 25^\circ\text{C}$) ($V_{CE} = 5.0\text{ V}$, $T_A = 100^\circ\text{C}$)	I_{CEO1}	—	1.0	50	nA
	I_{CEO2}	—	1.0	—	μA
Collector–Emitter Breakdown Voltage ($I_C = 100\text{ }\mu\text{A}$)	$V_{(BR)CEO}$	30	90	—	V
Emitter–Collector Breakdown Voltage ($I_E = 100\text{ }\mu\text{A}$)	$V_{(BR)ECO}$	7.0	7.8	—	V
Collector–Emitter Capacitance ($f = 1.0\text{ MHz}$, $V_{CE} = 0$)	C_{CE}	—	5.5	—	pF

COUPLED

Output Collector Current ($I_F = 1.0\text{ mA}$, $V_{CE} = 5.0\text{ V}$)		5.0 (500)	10 (1000)	—	mA (%)
Collector–Emitter Saturation Voltage ($I_C = 500\text{ }\mu\text{A}$, $I_F = 1.0\text{ mA}$)	$V_{CE(sat)}$	—	—	1.0	V
Turn–On Time ($I_F = 5.0\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\text{ }\Omega$)	t_{on}	—	3.5	—	μs
Turn–Off Time ($I_F = 5.0\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\text{ }\Omega$)	t_{off}	—	95	—	μs
Rise Time ($I_F = 5.0\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\text{ }\Omega$)	t_r	—	1.0	—	μs
Fall Time ($I_F = 5.0\text{ mA}$, $V_{CC} = 10\text{ V}$, $R_L = 100\text{ }\Omega$)	t_f	—	2.0	—	μs
Input–Output Isolation Voltage ($f = 60\text{ Hz}$, $t = 1.0\text{ sec.}$) ^(1,2)	V_{ISO}	3000	—	—	Vac(rms)
Isolation Resistance ($V_{I-O} = 500\text{ V}$) ⁽²⁾	R_{ISO}	10^{11}	—	—	Ω
Isolation Capacitance ($V_{I-O} = 0$, $f = 1.0\text{ MHz}$) ⁽²⁾	C_{ISO}	—	0.2	—	pF

1. Input–Output Isolation Voltage, V_{ISO} , is an internal device dielectric breakdown rating.
2. For this test, pins 1 and 2 are common, and pins 5, 6 and 7 are common.
3. Refer to Quality and Reliability Section in Opto Data Book for information on test conditions.
4. Always design to the specified minimum/maximum electrical limits (where applicable).
5. Current Transfer Ratio (CTR) = $I_C/I_F \times 100\%$.

TYPICAL CHARACTERISTICS

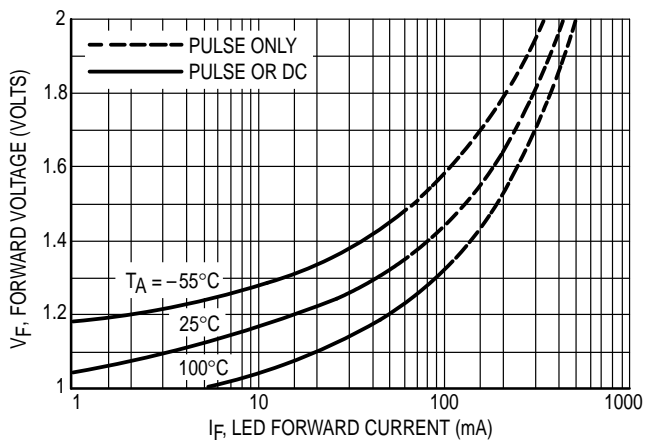


Figure 1. LED Forward Voltage versus Forward Current

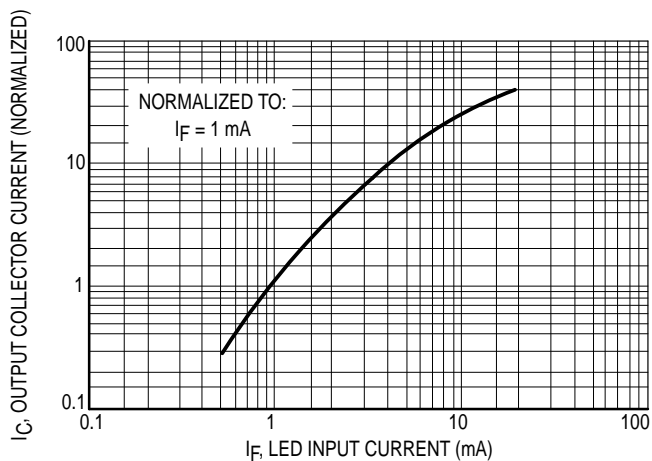


Figure 2. Output Current versus Input Current

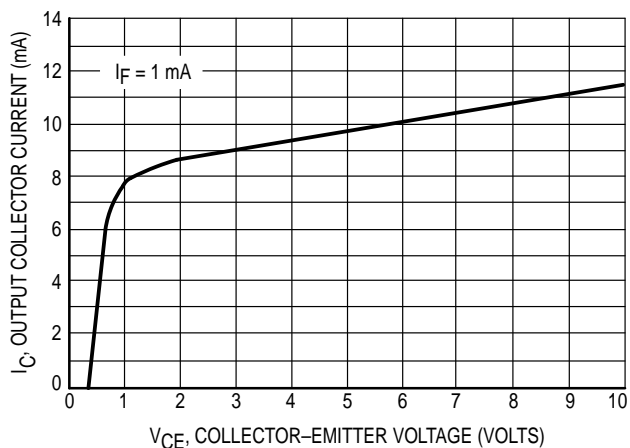


Figure 3. Output Current versus Collector-Emitter Voltage

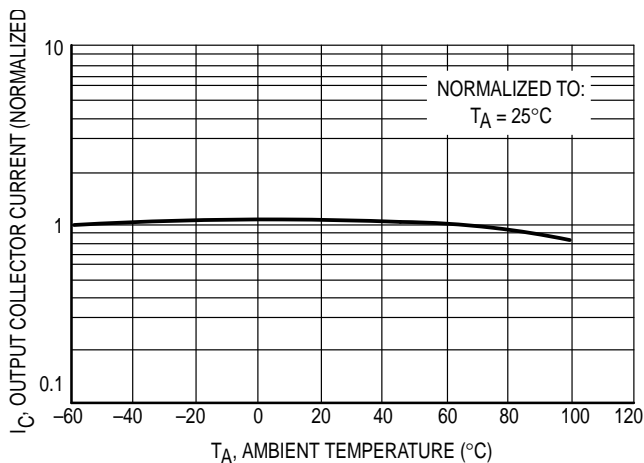


Figure 4. Output Current versus Ambient Temperature

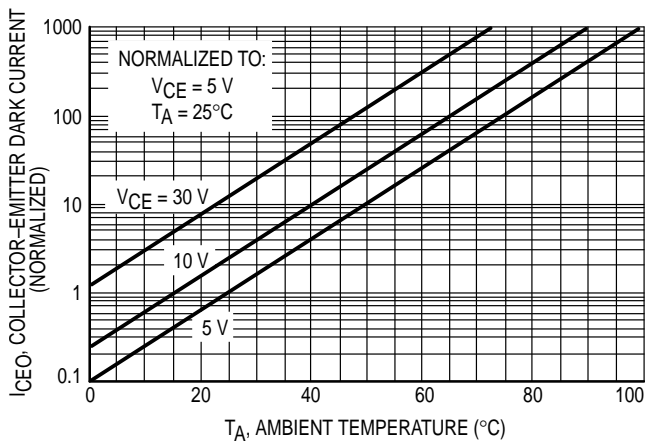


Figure 5. Dark Current versus Ambient Temperature

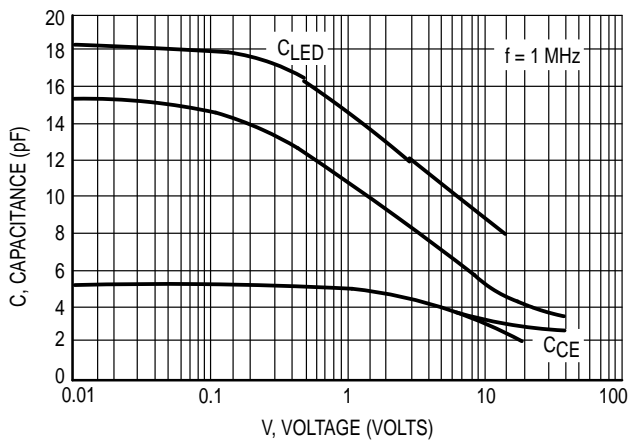
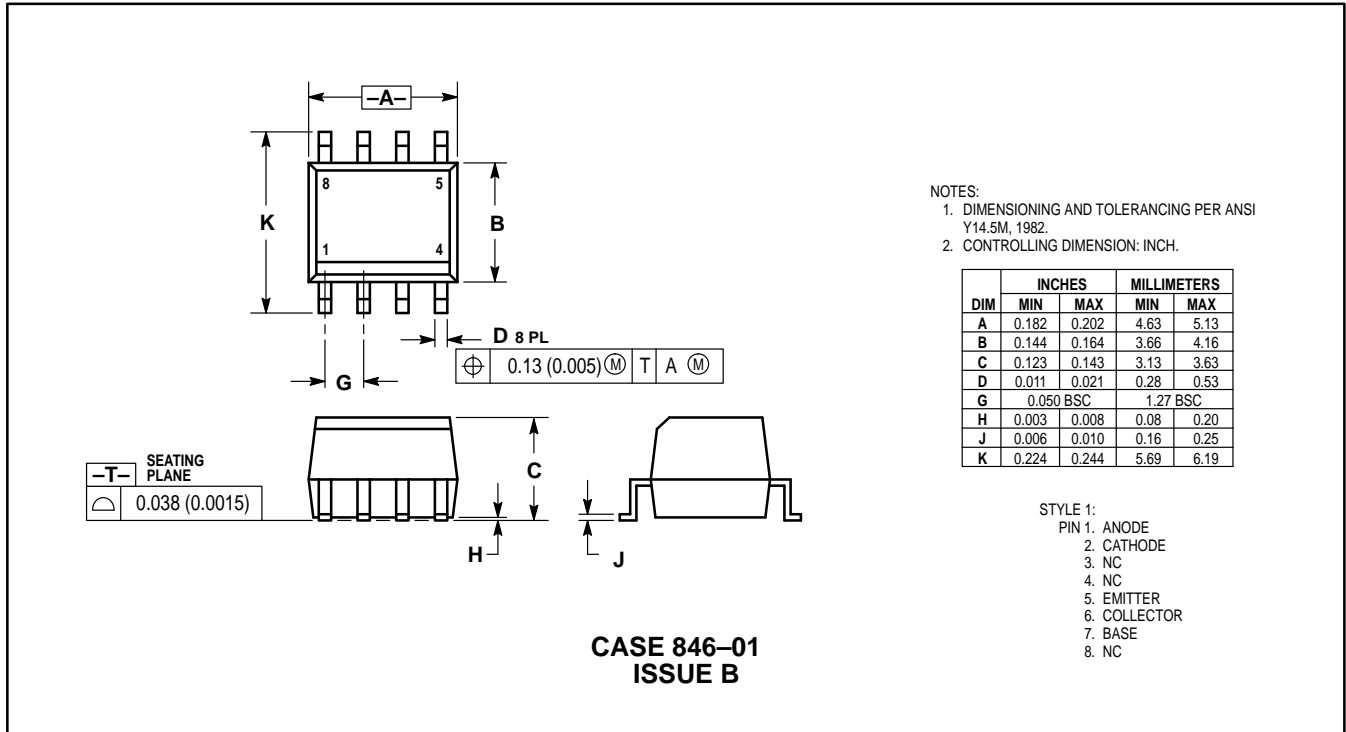


Figure 6. Capacitance versus Voltage

PACKAGE DIMENSIONS



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How to reach us:

USA / EUROPE: Motorola Literature Distribution;
 P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, Toshikatsu Otsuki,
 6F Seibu-Butsuryu-Center, 3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-3521-8315

MFAX: RMFAX0@email.sps.mot.com - TOUCHTONE (602) 244-6609
 INTERNET: http://Design-NET.com

HONG KONG: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

