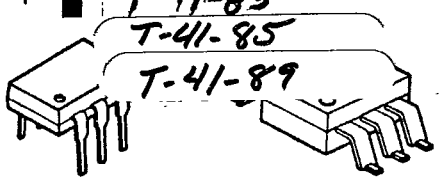
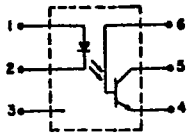
DUAL - IN - LINE PACKAGE ISOLATORS



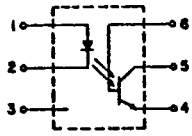
Below listed optoisolators are available in surface mount design. Specify suffix SMA (low profile) or SMB (standard profile).

PHOTO TRANSISTOR OUTPUT



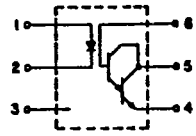
TYPE	ISOLATION VOLTAGE (V_{pk}) MIN.	CURRENT TRANSFER RATIO MIN.	I_{CEO}(nA) MAX.	BV_{CEO} (VOLTS) MIN.	TYPICAL (µSEC) t_r	TYPICAL (µSEC) t_f	$V_{CE(SAT)}$ MAX.
CNY17 I	5000	40-80%	50	70	2	2	.3
CNY17 II	5000	63-125%	50	70	2	2	.3
CNY17 III	5000	100-200%	50	70	2	2	.3
CNY17 IV	5000	160-320%	50	70	2	2	.3
CNY47	2800	20-60%	100	30	2	2	.4
CNY47A	2800	40%	100	30	2	2	.4
CNY51	5656	100%	50	70	2	2	.4
H11A1	2500	50%	50	30	2	2	.4
H11A2	1500	20%	50	30	2	2	.4
H11A3	2500	20%	50	30	2	2	.4
H11A4	1500	10%	50	30	2	2	.4
H11A5	1500	30%	100	30	2	2	.4
H11A520	5656	20%	50	30	2	2	.4
H11A550	5656	50%	50	30	2	2	.4
H11A5100	5656	100%	50	30	2	2	.4
H11AG1	4000V_{RMS}	300%	50	30	5	5	.4
H11AG2	4000V_{RMS}	200%	50	30	5	5	.4
H11AG3	2500V_{RMS}	100%	50	30	5	5	.4
H11AV1	4000V_{RMS}	100%	50	70	5	5	.4
H11AV2	4000V_{RMS}	50%	50	70	5	5	.4
H11AV3	4000V_{RMS}	20%	50	70	5	5	.4
4N25	2500	20%	50	30	3	3	.5
4N25A	1775V_{RMS}	20%	50	30	3	3	.5
4N26	1500	20%	50	30	3	3	.5
4N27	1500	10%	50	30	3	3	.5
4N28	500	10%	50	30	3	3	.5
4N35	2500V_{RMS}	100%	50	30	5	5	.3
4N36	1750V_{RMS}	100%	50	30	5	5	.3
4N37	1050V_{RMS}	100%	50	30	5	5	.3
MCT2	1500	20%	50	30	5	5	.4
MCT2E	3500	20%	50	30	5	5	.4
MCT26	1500	6%	50	30	5	5	.4
MCT210	2500	150%	50	30	5	5	.4

HIGH VOLTAGE PHOTO TRANSISTOR OUTPUT



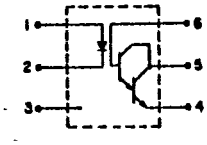
H11D1	3500	20%	100	300	5	5	.4
H11D2	2500	20%	100	300	5	5	.4
H11D3	2500	20%	100	200	5	5	.4
H11D4	2500	10%	100	200	5	5	.4
4N38	1500	10%	50	80	5	5	1.0
4N38A	1775V_{RMS}	10%	50	80	5	5	1.0
CNY33	2500	20%	100	300	5	5	.4

PHOTO DARLINGTON OUTPUT



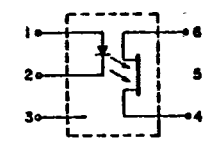
H11B1	2500	500%	100	25	125	100	1.0
H11B2	2500	200%	100	25	125	100	1.0
H11B3	2500	100%	100	25	125	100	1.0
4N29	2500	100%	100	30	5	40	1.0
4N29A	1775V_{RMS}	100%	100	30	5	40	1.0
4N30	1500	100%	100	30	5	40	1.0
4N31	1500	50%	100	30	5	40	1.2
4N32	2500	500%	100	30	5	100	1.0
4N32A	1775V_{RMS}	500%	100	30	5	100	1.0
4N33	1500	500%	100	30	5	100	1.0
CNY48	2120	600%	100	30	125	100	1.0
MCA230	3550	100%	100	30	5	100	1.0
MCA231	3550	200%	100	30	5	100	1.0
MCA255	3550	100%	100	55	5	100	1.0

HIGH VOLTAGE PHOTO DARLINGTON OUTPUT



H11G1	3535	1000%	100	100	5	100	1.0
H11G2	3535	1000%	100	80	5	100	1.0
H11G3	2125	200%	100	55	5	100	1.0
H11G45	5656	250%	100	55	50	500	1.0
H11G46	5665	500%	100	55	50	500	1.0

BILATERAL ANOLOG FET OUTPUT



TYPE	ISOLATION VOLTAGE (pk) MIN.	ON-STATE RESISTANCE MAX.OHMS	OFF-STATE RESISTANCE MIN.OHMS	BREAKDOWN VOLTAGE	TURN-ON TIME (µSEC)	TURN-OFF TIME (µSEC)
H11F1	2500	200	300M	30	15	15
H11F2	2500	330	300M	30	15	15
H11F3	1500	470	300M	15	15	15

Optoelectronics Division
TRW Electronic Components Group

Product Bulletin 5240
January 1985

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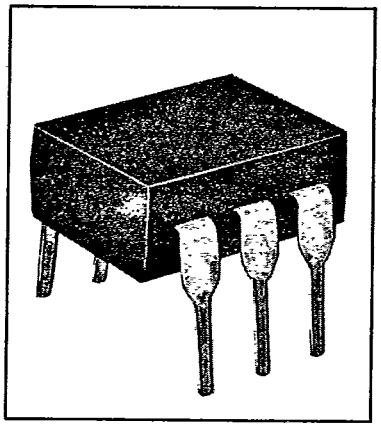
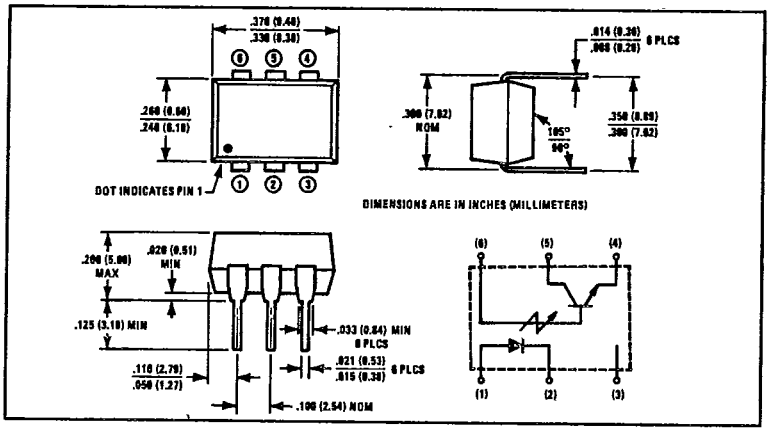
T-41-83

Optically Coupled Isolators
Types 4N25, 4N26, 4N27, 4N28





Features
- 2500, 1500 or 500 volt isolation ratings
- Low cost 6 pin dual-in-line package
- UL recognized File No. E58730

Description
The 4N25, 4N26, 4N27 and 4N28 are JEDEC registered optically coupled isolators each consisting of a gallium arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard plastic six pin dual-in-line package.

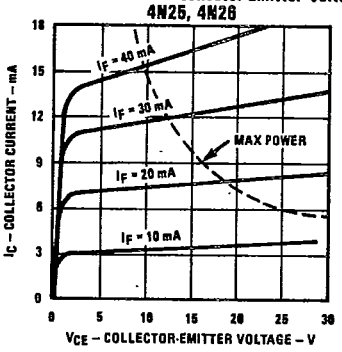
Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Input-to-Output Isolation Voltage 4N25	±2500 VDC[1]
4N26, 4N27	±1500 VDC[1]
4N28	±500 VDC[1]
Storage Temperature Range	−55°C to +150°C
Operating Temperature Range	−55°C to +100°C
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron)[2]	260°C
Total Device Power Dissipation	250 mW[3]
Input Diode	
Forward DC Current	60 mA
Peak Forward Current (1 μs pulse width, 300 pps)	3.0 A
Reverse Voltage	3.0 V
Power Dissipation	100 mW[4]
Output Phototransistor	
$V_{(BR)CEO}$	30 V
$V_{(BR)CBO}$	70 V
$V_{(BR)ECO}$	7.0 V
Power Dissipation	150 mW[5]

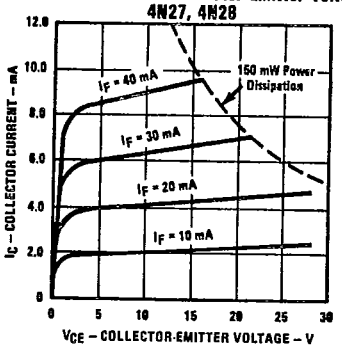
Notes: (1) Measured with input diode leads shorted together and output leads shorted together. (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. (3) Derate linearly 3.3 mW/°C above 25°C. (4) Derate linearly 1.33 mW/°C above 25°C. (5) Derate linearly 2.0 mW/°C above 25°C.

Typical Performance Curves

Collector Current vs Collector-Emitter Voltage
4N25, 4N26



Collector Current vs Collector Emitter Voltage
4N27, 4N28



Optoelectronics Division
TRW Electronic Components Group

Product Bulletin 5242
January 1986

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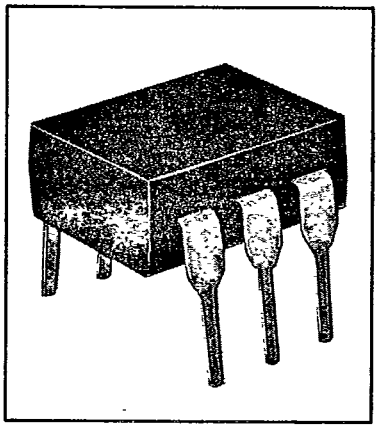
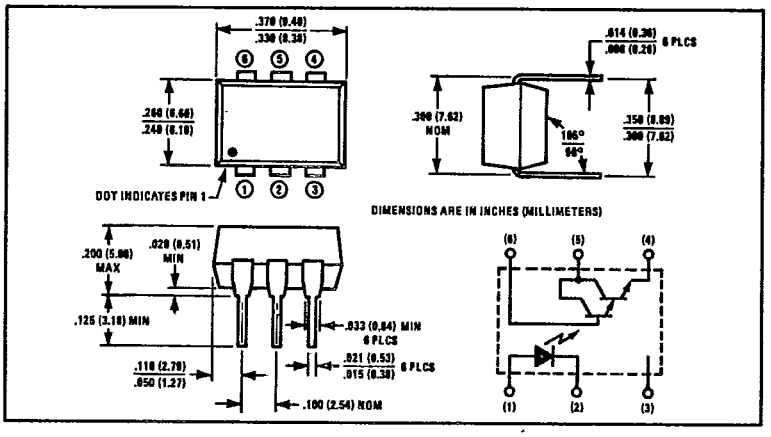
T-41-85

Optically Coupled Isolators
Types 4N29, 4N30, 4N31, 4N32, 4N33





Features
- Photodarlington output
- High current transfer ratio
- 2500 or 1500 volt isolation ratings
- UL recognized File No. E58730

Description
The 4N29, 4N30, 4N31, 4N32, and 4N33 are JEDEC registered optically coupled isolators each consisting of a gallium arsenide infrared emitting diode and an NPN silicon photodarlington mounted in a standard plastic six pin dual-in-line package.

Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Input-to-Output Isolation Voltage — 4N30, 4N31, 4N33	±1500 VDC[1]
4N29, 4N32	±2500 VDC[1]
Storage Temperature Range	−55°C to +150°C
Operating Temperature Range	−55°C to +100°C
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron)[2]	260°C
Input Diode	
Forward DC Current	60 mA
Peak Forward Current (1 μs pulse width, 330 pps)	3.0 A
Reverse DC Voltage	3.0 V
Power Dissipation	100 mW[3]
Output Photodarlington	
Collector-Emitter Voltage	30 V
Collector-Base Voltage	30 V
Emitter-Collector Voltage	5.0 V
Power Dissipation	150 mW[4]

Notes:
(1) Measured with input leads shorted together and output leads shorted together.
(2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
(3) Derate linearly 1.33 mW/°C above 25°C.
(4) Derate linearly 2.0 mW/°C above 25°C.

Optoelectronics Division
TRW Electronic Components Group

Product Bulletin 5244
January 1985

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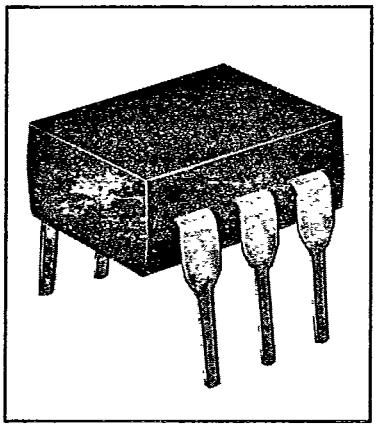
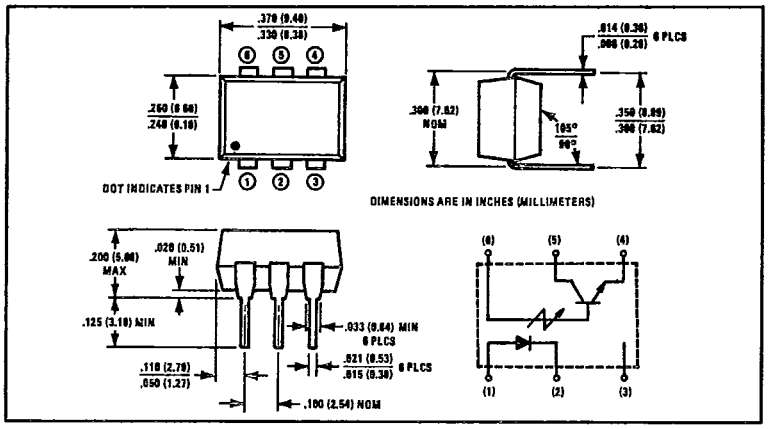
T-41-83

Optically Coupled Isolators
Types 4N35, 4N36, 4N37,





Features
- 2500, 1750 or 1050 V_{RMS} isolation ratings
- High current transfer ratio
- Low cost 6 pin dual-in-line package
- UL recognized File No. E58730

Description
The 4N35, 4N36, and 4N37 are JEDEC registered optically coupled isolators each consisting of a gallium arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard plastic six pin dual-in-line package. Except for isolation voltages, the devices are identical.

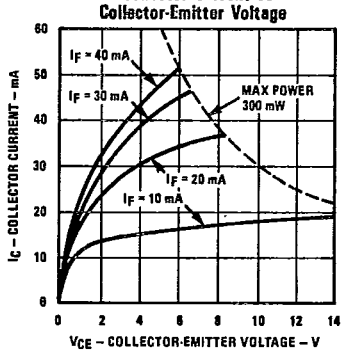
Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Input-to-Output Isolation Voltage	4N35	2500 V_{RMS} ..... 3500 VAC(1)
	4N36	1750 V_{RMS} ..... 2500 VAC(1)
	4N37	1050 V_{RMS} ..... 1500 VAC(1)
Storage Temperature Range		−55°C to +150°C
Operating Temperature Range		−55°C to +100°C
Lead Soldering Temperature (1/16 inch (1.6 mm) from case for 5 sec. with soldering iron)(2)		260°C
Total Device Power Dissipation		400 mW(3)
Input Diode		
Forward DC Current		60 mA
Peak Forward Current (1 μs pulse width, 300 pps)		3.0 A
Reverse Voltage		6.0 V
Power Dissipation		100 mW(4)
Output Transistor		
$V_{(BR)CEO}$		30 V
$V_{(BR)CBO}$		70 V
$V_{(BR)ECO}$		7.0 V
Power Dissipation		300 mW(5)

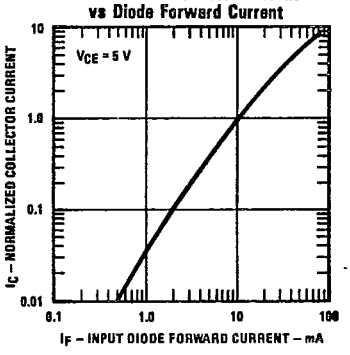
Notes: (1) Measured with input diode leads shorted together and output leads shorted together. (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. (3) Derate linearly 4.0 mW/°C above 25°C. (4) Derate linearly 1.33 mW/°C above 25°C. (5) Derate linearly 4.0 mW/°C above 25°C.

Typical Performance Curves

Collector Current vs Collector-Emitter Voltage



Normalized Collector Current vs Diode Forward Current



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Product Bulletin 5246
January 1985

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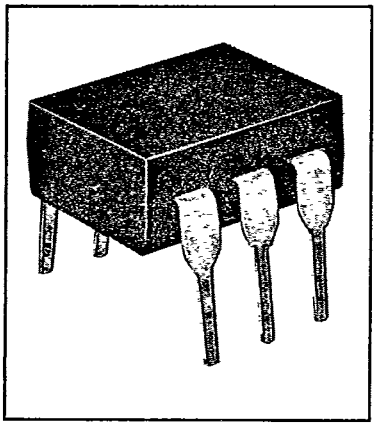
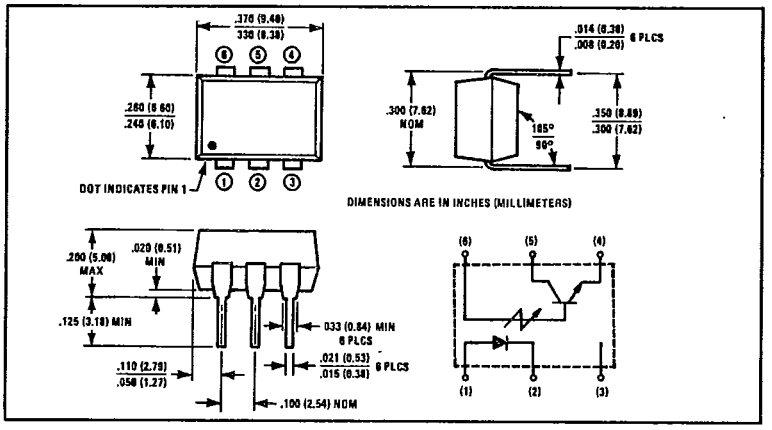
T-41-83

Optically Coupled Isolators
Types 4N38, 4N38A





Features
- 1500 and 2500 volt isolation
- High breakdown voltages
- UL recognized File No. E58730

Description
The 4N38 and 4N38A are JEDEC registered optically coupled isolators each consisting of a gallium arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard plastic six pin dual-in-line package. This series is designed with higher than standard breakdown voltages for use in circuitry where increased power supply voltages are used. The 4N38 and 4N38A are identical except for input-to-output isolation voltage (see Absolute Maximum Ratings).

Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Input-to-Output Isolation Voltage 4N38	±1500 VDC[1]
4N38A	1775 VAC & ±2500 VDC[1]
Storage Temperature Range	−55°C to +150°C
Operating Temperature Range	−55°C to +100°C
Lead Soldering Temperature (1/16 inch (1.6 mm) from case for 5 sec. with soldering iron)[2]	260°C
Total Device Power Dissipation	250 mW[3]
Input Diode	
Forward DC Current	80 mA
Peak Forward Current (1 μs pulse, 300 pps)	3.0 A
Reverse Voltage	3.0 V
Power Dissipation	150 mW[4]
Output Phototransistor	
Collector-Emitter Voltage	80 V
Collector-Base Voltage	80 V
Emitter-Collector Voltage	7.0 V
Power Dissipation	150 mW[4]

Notes:
(1) Measured with input diode leads shorted together and output leads shorted together.
(2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
(3) Derate linearly 3.33 mW/°C above 25°C.
(4) Derate linearly 2.0 mW/°C above 25°C.