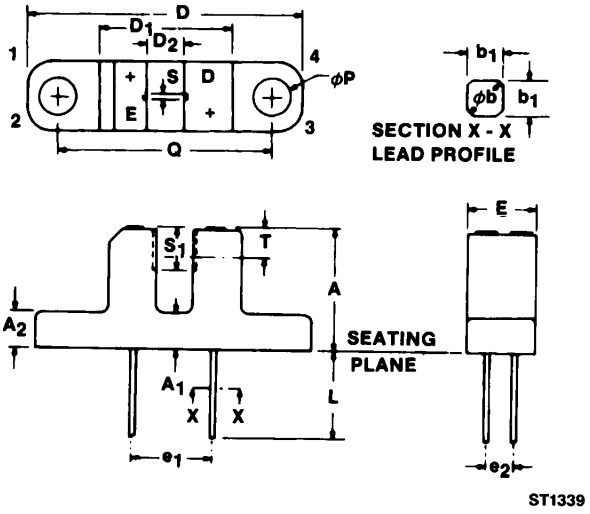
OPTOELECTRONICS

SLOTTED OPTICAL SWITCH

CNY29

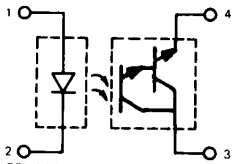
PACKAGE DIMENSIONS



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	10.7	11.0	.422	.433	
A_1	3.0	3.2	.119	.125	
A_2	3.0	3.2	.119	.125	
Ⓜb	.600	.750	.024	.030	2
b_1	.50 NOM.		.020 NOM.		2
D	24.3	24.7	.957	.972	
D_1	11.0	12.0	.457	.472	
D_2	3.0	3.3	.119	.129	
e_1	6.9	7.5	.272	.295	
e_2	2.3	2.8	.091	.110	
E	.615	6.35	.243	.249	
L	6.00		.315		
Ⓜp	3.2	3.4	.126	.133	
Q	18.9	19.2	.745	.755	
S	.85	1.0	.034	.039	
S_1	3.45	3.75	.136	.147	
T	2.6 NOM.		.103 NOM.		3

NOTES:
1. INCH DIMENSIONS ARE DERIVED FROM MILLIMETERS.
2. FOUR LEADS. LEAD CROSS SECTION IS CONTROLLED BETWEEN 1.27mm (.050") FROM SEATING PLANE AND THE END OF THE LEADS.
3. THE SENSING AREA IS DEFINED BY THE "S" DIMENSION AND BY DIMENSION "T" ±0.75mm (±.030 INCH).

PACKAGE OUTLINE



ST1609

DESCRIPTION

The CNY29 is a gallium arsenide infrared emitting diode coupled with a silicon photodarlington in a plastic housing. The gap in the housing provides a means of interrupting the signal with tape, cards, shaft encoders, or other opaque material, switching the output from an "ON" to an "OFF" state.

FEATURES

- Opaque housing
- Low cost
- .035" apertures
- European "Pro Electron" registered

QT OPTOELECTRONICS

SLOTTED OPTICAL SWITCH

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Storage Temperature ..... −55°C to +85°C
Operating Temperature ..... −55°C to +85°C
Soldering:
Lead Temperature (Iron) ..... 240°C for 5 sec.[3,4,5]
Lead Temperature (Flow) ..... 260°C for 10 sec.[3,4]

INPUT DIODE
Continuous Forward Current ..... 60 mA
Reverse Voltage ..... 3.0 Volts
Power Dissipation ..... 100 mW[1]

OUTPUT DARLINGTON
Collector-Emitter Voltage ..... 25 Volts
Emitter-Collector Voltage ..... 7 Volts
Power Dissipation ..... 150 mW[2]

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward Voltage	V_F	—		1.7	V	I_F = 10 mA
Reverse Leakage Current	I_R	—		10	μA	V_R = 2 V
OUTPUT DARLINGTON						
Emitter-Collector Breakdown	BV_{ECO}	7.0		—	V	I_E = 100 μA, Ee=0
Collector-Emitter Breakdown	BV_{CEO}	25		—	V	I_C = 10 mA, Ee=0
Collector-Emitter Leakage	I_{CEO}	—		100	nA	V_{CE} = 10 V, Ee=0
COUPLED						
On-State Collector Current	$I_{C(ON)}$	2.5		—	mA	I_F = 20 mA, V_{CE} = 10 V
Saturation Voltage	$V_{CE(SAT)}$	—		1.2	V	I_F = 20 mA, I_C = 0.5 mA
Turn-On Time	t_{on}		150		μS	I_C = 2.0 mA, V_{CC} = 10 V, R_L=750Ω
Turn-Off Time	t_{off}		150		μS	I_C = 2.0 mA, V_{CC} = 10 V, R_L=750Ω

NOTES

1. *Derate power dissipation linearly 1.67 mW/°C above 25°C.*
2. *Derate power dissipation linearly 2.50 mW/°C above 25°C.*
3. *RMA flux is recommended.*
4. *Methanol or Isopropyl alcohols are recommended as cleaning agents.*
5. *Soldering iron tip 1/16" (1.6 mm) from housing.*

TYPICAL CHARACTERISTICS

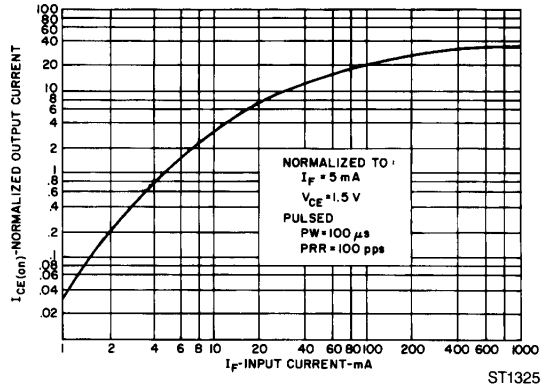


Fig. 1. Output Current vs. Input Current

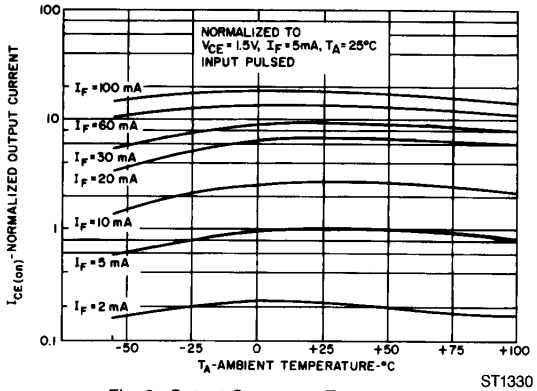


Fig. 2. Output Current vs. Temperature

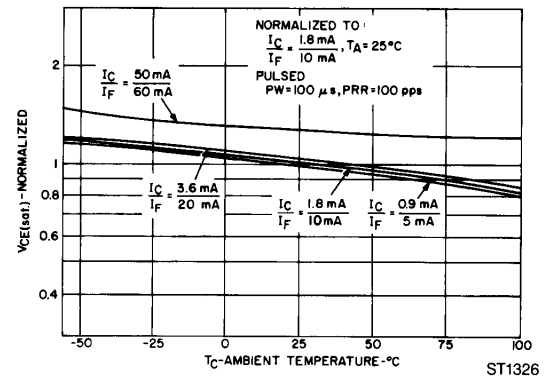


Fig. 3. $V_{CE(SAT)}$ vs. Temperature

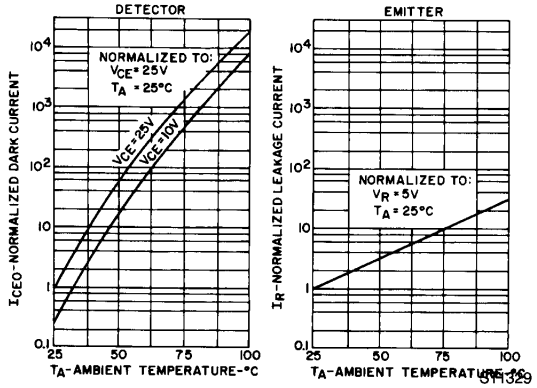


Fig. 4. Leakage Current vs. Temperature

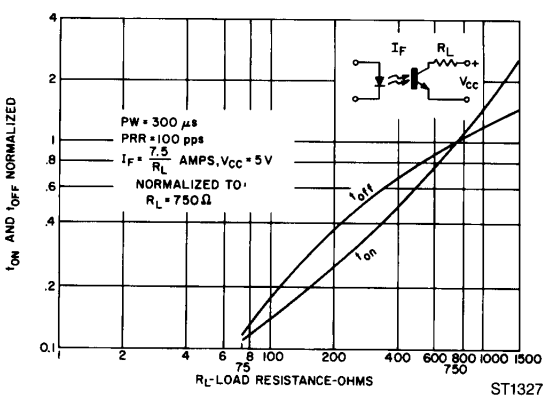


Fig. 5. Switching Speed vs. R_L

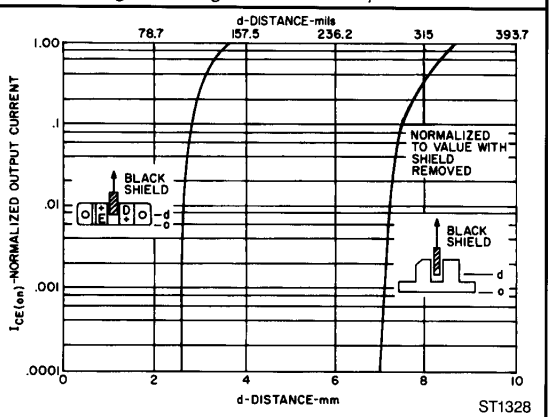


Fig. 6. Output Current vs. Distance