SLOTTED OPTICAL SWITCHES
PHOTOTRANSISTOR OUTPUT

KT830 - KT840 SERIES

T-41-13

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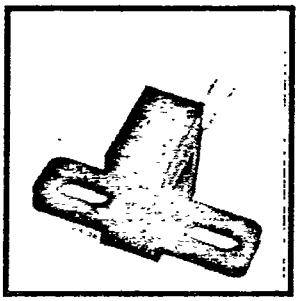
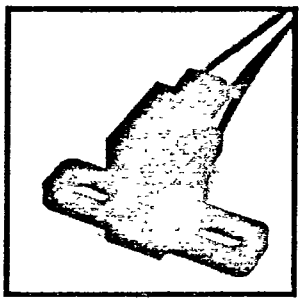


PACKAGE L



PACKAGE W

DESCRIPTION

The KT830/KT840 series of slotted optical switches provide the design engineer with the flexibility of a custom device from a standard product line. Building from a standard housing with a .125" wide slot, the user can specify (1) Electrical output parameters, (2) Lead or wire termination, (3) Lead spacing, (4) Discrete shell, and (5) Aperture widths.

All housings are an opaque grade of injection-molded polysulfone (P1700-935) to minimize the assembly's sensitivity to ambient radiation, both visible and near-infrared. Discrete shells (exposed only on the parallel faces inside the device throat) are either IR transmissive polysulfone (P1700-1615) for applications where aperture contamination may occur, or opaque polysulfone where maximum protection against ambient radiation is a concern.

The "L" series of switches have .020" square leads and can be specified for either .220" or .320" spacing.

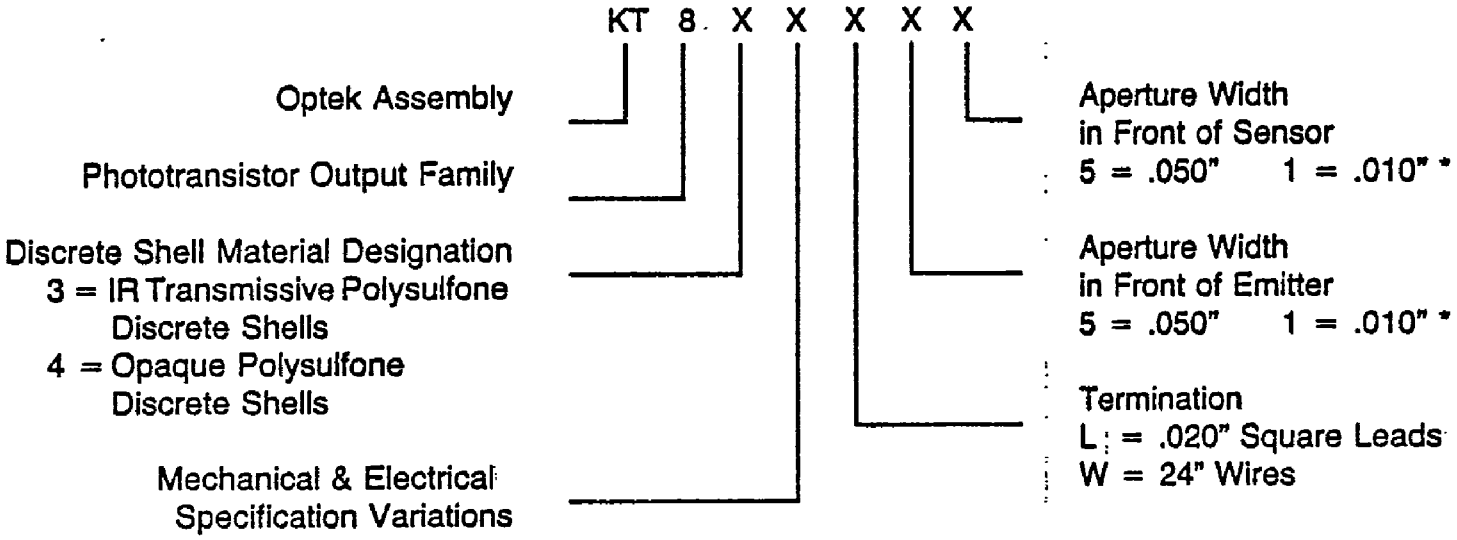
The "W" series of switches are terminated with 24 inches of 7 strand, 26 AWG, UL 1429 insulated wire on each terminal. Insulation colors and functions are:

RED - IRED Anode
BLACK - IRED Cathode
WHITE - Phototransistor Collector
GREEN - Phototransistor Emitter

Other wire lengths and/or colors are available. Contact your local representative or call the factory.

JANUARY 1987

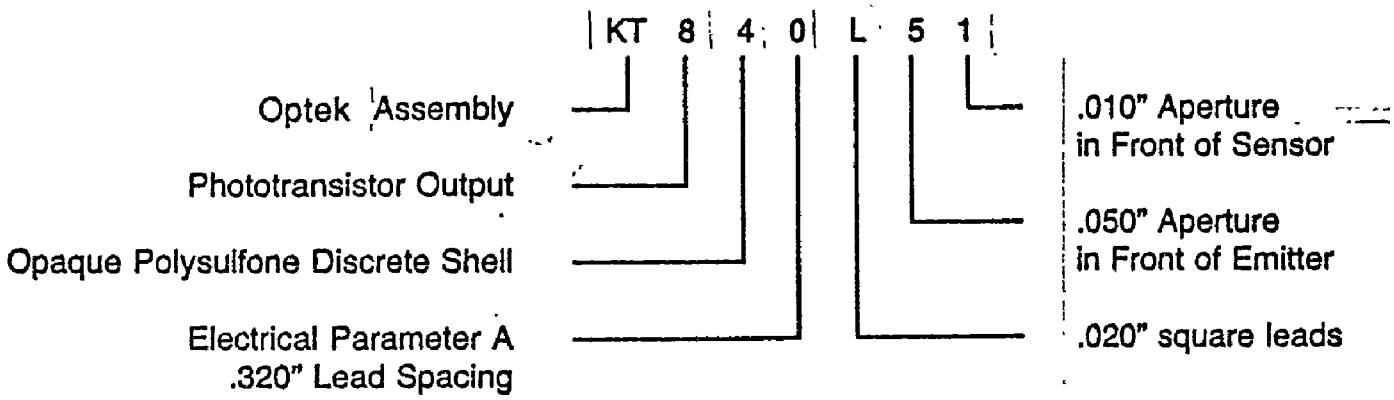
PART NUMBER GUIDE



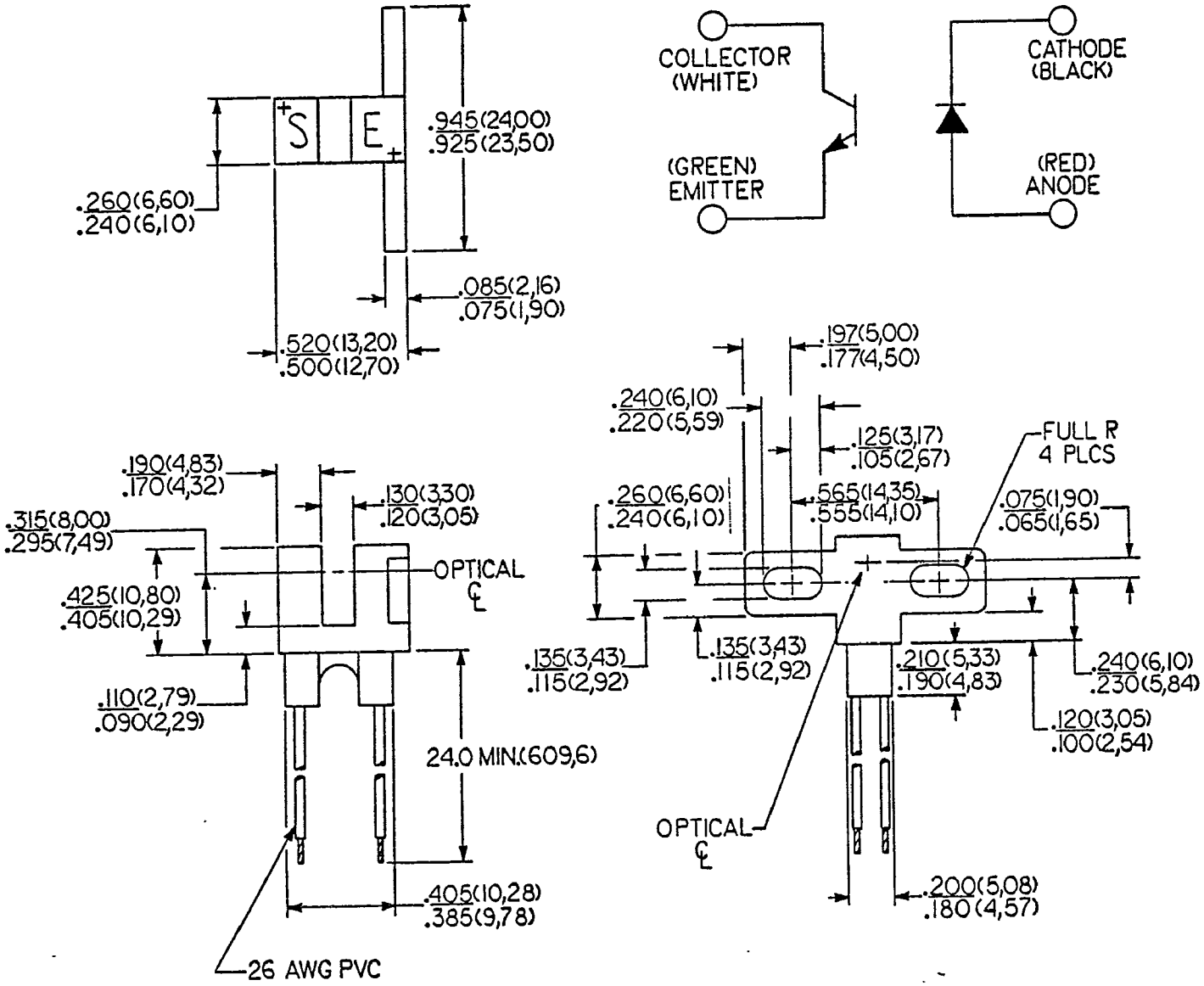
0 = Electrical Parameter A Lead Spacing .320" **
1 = Electrical Parameter B Lead Spacing .320" **
2 = Electrical Parameter C Lead Spacing .320" **
5 = Electrical Parameter A Lead Spacing .220" **
6 = Electrical Parameter B Lead Spacing .220" **
7 = Electrical Parameter C Lead Spacing .220" **

*Assemblies with dual .010" apertures are currently available with electrical parameter "A" onl
**Refers to "L" configuration only.

EXAMPLE



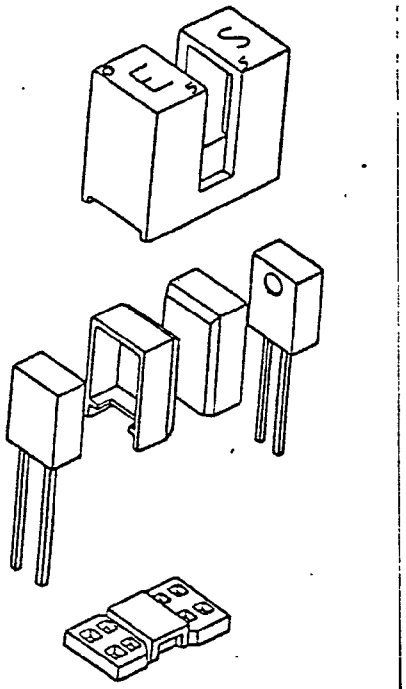
KT830-KT840 W SERIES



3

NOTE:
Housing is soluble in chlorinated hydrocarbons and ketones.
Methanol or isopropanol are recommended as a cleaning agent.

MECHANICAL CONSTRUCTION



All housings are an opaque grade of injection-molded polysulfone (P1700-935) to minimize the assembly's sensitivity to ambient radiation, both visible and near-infrared. Discrete shells (exposed only on the parallel faces inside the device throat) are either IR transmissive polysulfone (P1700-1615) for applications where aperture contamination may occur, or opaque polysulfone (P1700-935) with aperture openings, where maximum protection against ambient radiation is a concern.

ELECTRICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
INPUT DIODE					
V_F	FORWARD VOLTAGE		1.7	V	I_F = 20 mA
I_R	REVERSE CURRENT		100	uA	V_R = 3V
OUTPUT PHOTOTRANSISTOR					
$V_{(BR)CEO}$	COLLECTOR-EMITTER BREAKDOWN VOLTAGE	30		V	I_C = 1 mA
$V_{(BR)ECO}$	EMITTER-COLLECTOR BREAKDOWN VOLTAGE	5		V	I_E = 100 uA
I_{CEO}	COLLECTOR-EMITTER DARK CURRENT		100	nA	V_{CE} = 10V
COUPLED					
$V_{CE\ (SAT)}$	COLLECTOR-EMITTER SATURATION VOLTAGE Parameter A - KT830, KT840 KT835, KT845		0.4	V	I_C = 400uA, I_F = 20 mA
	Parameter B - KT831, KT841 KT836, KT846		0.4	V	I_C = 800uA, I_F = 10 mA
	Parameter C - KT832, KT842 KT837, KT847		0.6	V	I_C = 1800uA, I_F = 20 mA
$I_{C\ (ON)}$	ON-STATE COLLECTOR CURRENT Parameter A - KT830, KT840 KT835, KT845	500		uA	V_{CE} = 10V, I_F = 20 mA
	Parameter B - KT831, KT841 KT836, KT846	1000		uA	V_{CE} = 5V, I_F = 10 mA
	Parameter C - KT832, KT842 KT837, KT847	1800		uA	V_{CE} = 0.6V, I_F = 20 mA

ABSOLUTE MAXIMUM RATINGS (25° C unless otherwise noted)

Storage and Operating Temperature Range ..... KT830L /KT840L Series −40°C to +85°C (A)
KT830W/KT840W Series −40°C to +80°C (B)

Lead Soldering Temperature (1/16" from case for 5 seconds with soldering iron) ..... +240°C (C)

INPUT DIODE

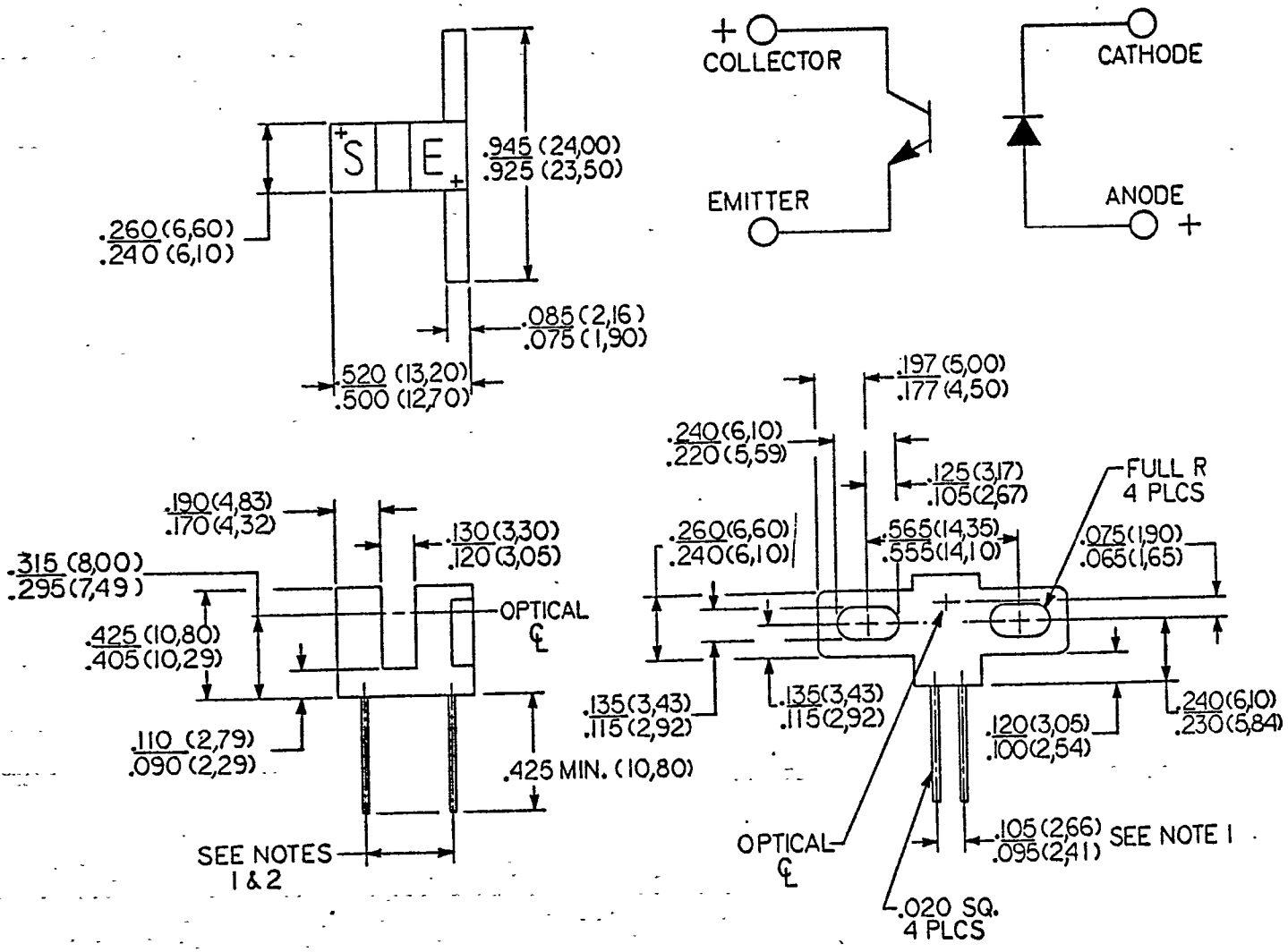
Forward DC Current ..... 50 mA
Peak Forward Current (1 us pulse width, 300pps) ..... 3 A
Reverse DC Voltage ..... 3 V
Power Dissipation ..... 100 mW (A)
Power Dissipation ..... 100 mW (B)

OUTPUT PHOTOTRANSISTOR

Collector-Emitter Voltage ..... 30 V
Emitter-Collector Voltage ..... 5 V
Collector DC Current ..... 30 mA
Power Dissipation ..... 100 mW (A)
Power Dissipation ..... 100 mW (B)

Notes:
(A) Derate linerly 1.67mW/°C above 25°C (KT830L/KT840L).
(B) Derate linerly 1.82mW/°C above 25°C (Maximum storage and operating temperature limited by temperature rating of lead wires (KT830W/KT840W)
(C) Applies to KT830L/KT840L Series only. RMA flux is recommended. Duration can be extended to 10 seconds maximum when wave soldering.
(D) All parameters tested using pulse technique.

KT830-KT840 L SERIES



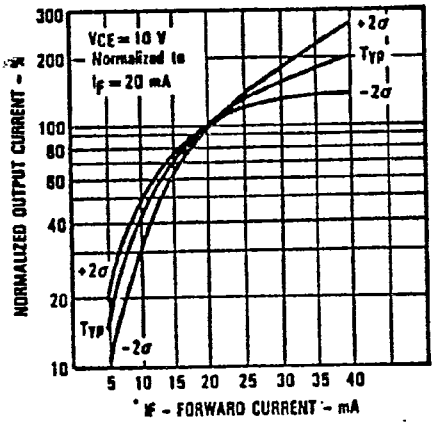
NOTES:

1. Dimension controlled at housing surface only.
2. KT830L thru KT832L and KT840L thru KT842L lead spacing: .320" ± .005"
   KT835L thru KT837L and KT845L thru KT847L lead spacing: .220" ± .005"
3. Housing is soluble in chlorinated hydrocarbons and ketones.
   Methanol or isopropanol are recommended as a cleaning agent.

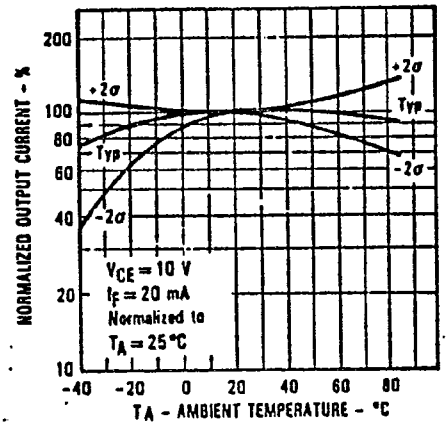
TYPICAL PERFORMANCE CURVES

OPTEK TECHNOLOGY reserves the right to make changes at anytime without prior notice.

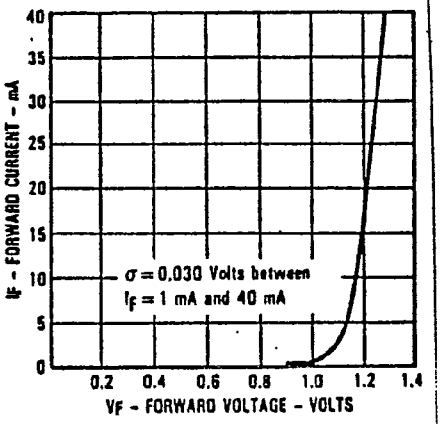
Normalized Output Current vs Forward Current



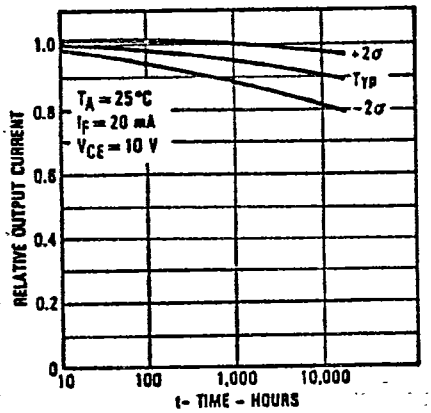
Normalized Output Current vs. Ambient Temperature



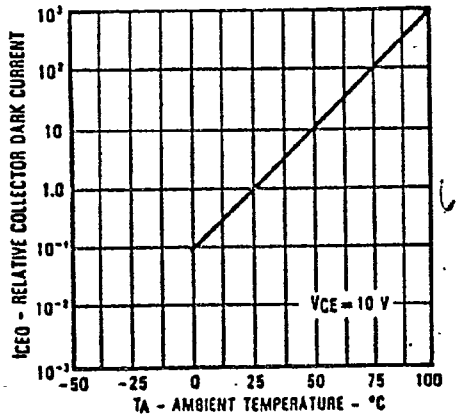
Forward Current vs Forward Voltage



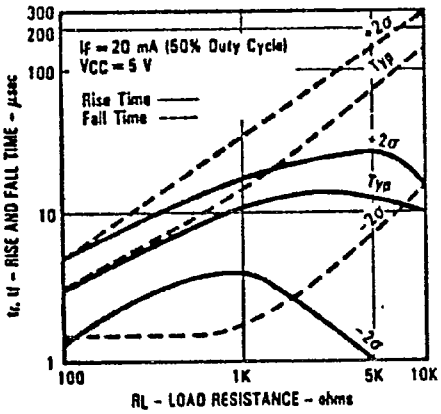
Relative Output Current vs Time



Collector Dark Current vs Ambient Temperature

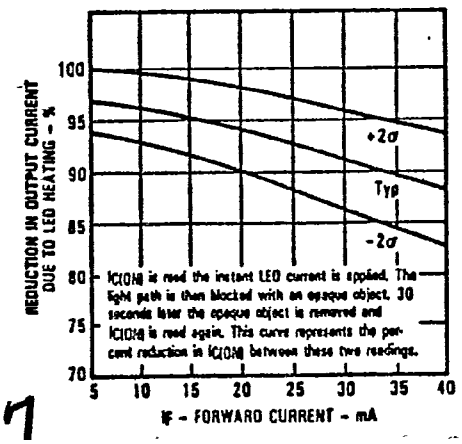


Rise and Fall Time vs Load Resistance

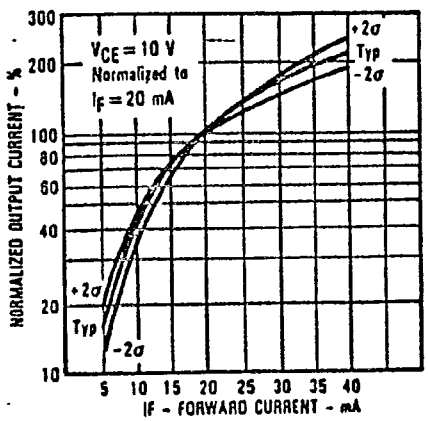


All Part Numbers Ending in "1"

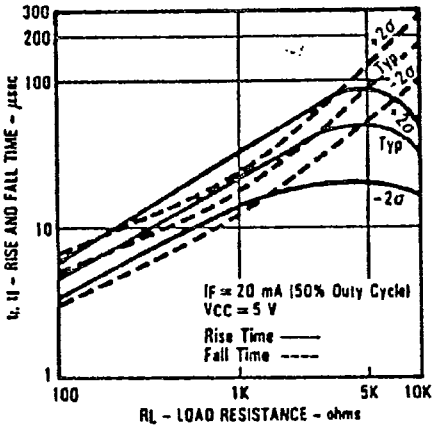
Reduction in Output Current Due to LED Heating vs Forward Current



Normalized Output Current vs Input Current



Rise and Fall Time vs Load Resistance



1