

# REFLECTIVE SWITCH T-41-73

## MTRS9030 INFRARED LED & PHOTO DARLINGTON TRANSISTOR

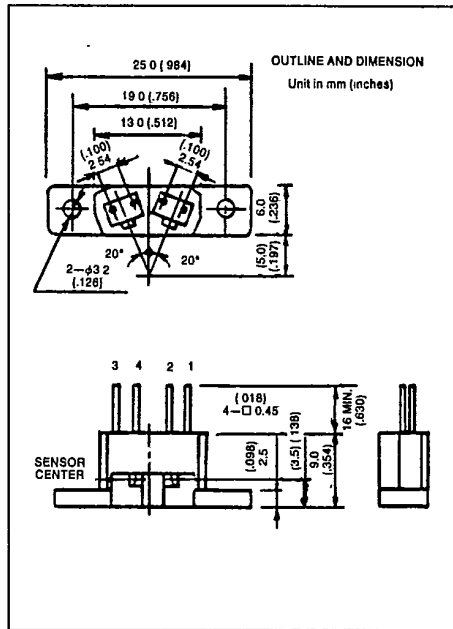
### APPLICATIONS

HIGH SENSITIVE OPTICALLY REFLECTIVE  
SENSOR

- OPTICAL SWITCH
- TAPE EDGE SENSOR
- COPIER PAPER SENSOR

### FEATURES

- High Sensitivity.
- Non Sensitivity for Visible Light.

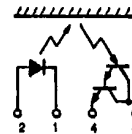


### MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
LED	Forward Current	$I_F$	50	mA
	Pulse Forward Current (Note 1)	$I_{FP}$	600	mA
	Reverse Voltage	$V_R$	5	V
DETECTOR	Collector-Emitter Voltage	$V_{CEO}$	30	V
	Emitter-Collector Voltage	$V_{ECO}$	5	V
	Collector Current	$I_C$	50	mA
	Collector Power Dissipation	$P_C$	75	mW
Operating Temperature Range		$T_{opr}$	-25 ~ 85	°C
Storage Temperature Range		$T_{stg}$	-40 ~ 100	°C

Note 1: Pulse width  $\leq 100\mu s$ , Repetitive frequency = 100Hz.

### PIN CONFIGURATIONS



1. CATHODE
2. ANODE
3. COLLECTOR
4. EMITTER

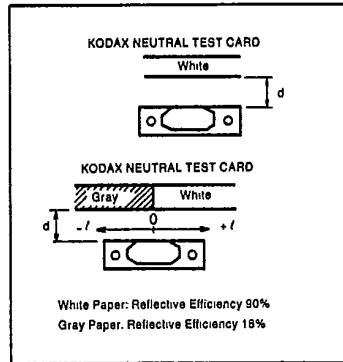
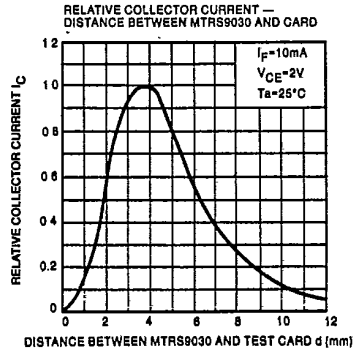
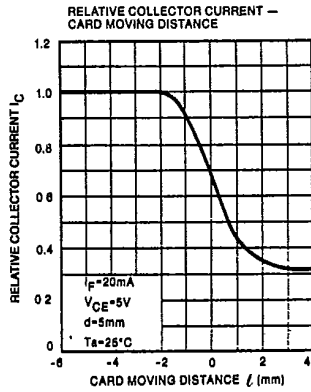
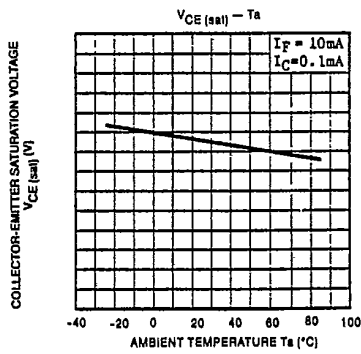
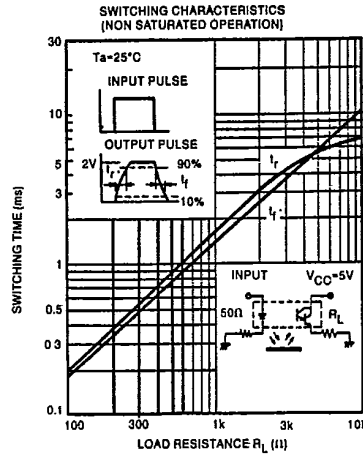
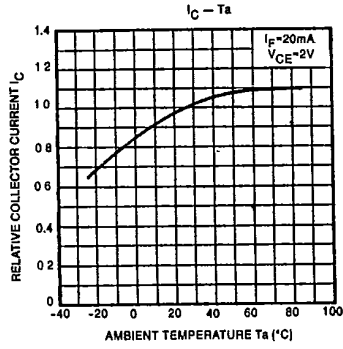
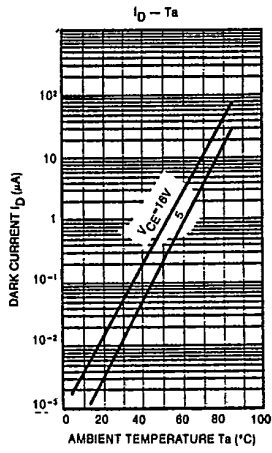
### OPTO-ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
LED	Forward Voltage	$V_F$	$I_F=10mA$	—	1.15	1.30	V
	Reverse Current	$I_R$	$V_R=5V$	—	—	10	$\mu A$
	Terminal Between Capacitance	$C_T$	$V=0, f=1MHz$	—	30	—	pF
DET.	Dark Current	$I_D(I_{CEO})$	$V_{CE}=16V, I_F=0$	—	30	250	nA
	Collector Current (Note 2)	$I_C$	$V_{CE}=2V, I_F=10mA$	200	1000	—	$\mu A$
COUP.	Rise Time, Fall Time	$t_r, t_f$	$V_{CC}=5V, I_C=10mA$	—	200	—	$\mu s$
			$R_L=100\Omega$				

Note 2: Reflective Efficiency 90% White Paper, Detection Distance 5mm.

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