

H21A1 / H21A2 / H21A3

PHOTOTRANSISTOR

OPTICAL INTERRUPTER SWITCH

ELECTRICAL / OPTICAL CHARACTERISTICS (T _A = 25°C)(All measurements made under pulse condition)							
PARAMETER	TEST CONDITIONS	SYMBOL	DEVICES	MIN	TYP	MAX	UNITS
INPUT (EMITTER)							
Forward Voltage	I _F = 60 mA	V _F	All	—	—	1.7	V
Reverse Breakdown Voltage	I _R = 10 μA	V _R	All	6.0	—	—	V
Reverse Leakage Current	V _R = 3 V	I _R	All	—	—	1.0	μA
OUTPUT (SENSOR)							
Emitter to Collector Breakdown	I _F = 100 μA, E _e = 0	BV _{ECO}	All	6.0	—	—	V
Collector to Emitter Breakdown	I _C = 1 mA, E _e = 0	BV _{CEO}	All	30	—	—	V
Collector to Emitter Leakage	V _{CE} = 25 V, E _e = 0	I _{CEO}	All	—	—	100	nA
COUPLED							
On-State Collector Current	I _F = 5 mA, V _{CE} = 5 V	I _{C(ON)}	H21A1	0.15	—	—	mA
			H21A2	0.30	—	—	
			H21A3	0.60	—	—	
	I _F = 20 mA, V _{CE} = 5 V		H21A1	1.0	—	—	
			H21A2	2.0	—	—	
			H21A3	4.0	—	—	
	I _F = 30 mA, V _{CE} = 5 V		H21A1	1.9	—	—	
			H21A2	3.0	—	—	
			H21A3	5.5	—	—	
Saturation Voltage	I _F = 20 mA, I _C = 1.8 mA	V _{CE(SAT)}	H21A2/3	—	—	0.40	V
	I _F = 30 mA, I _C = 1.8 mA		H21A1	—	—	0.40	V
Turn-On Time	I _F = 30 mA, V _{CC} = 5 V, R _L = 2.5 KΩ	t _{on}	All	—	8	—	μs
Turn-Off Time	I _F = 30 mA, V _{CC} = 5 V, R _L = 2.5 KΩ	t _{off}	All	—	50	—	μs

Figure 1. Output Current vs. Input Current

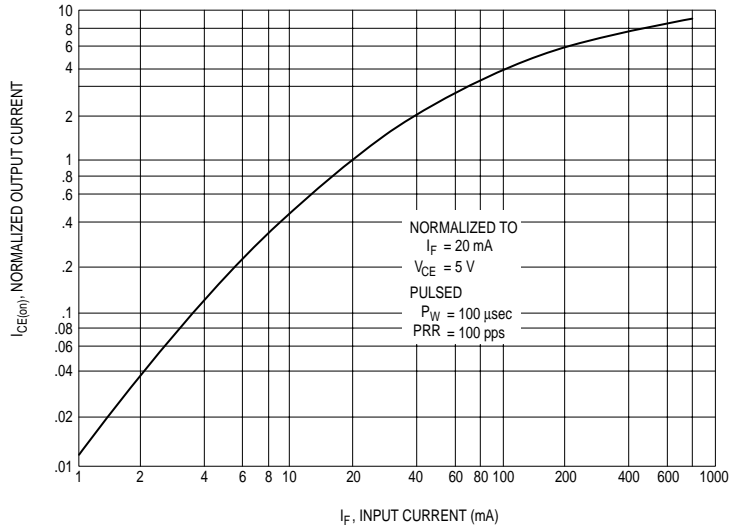


Figure 2. Output Current vs. Temperature

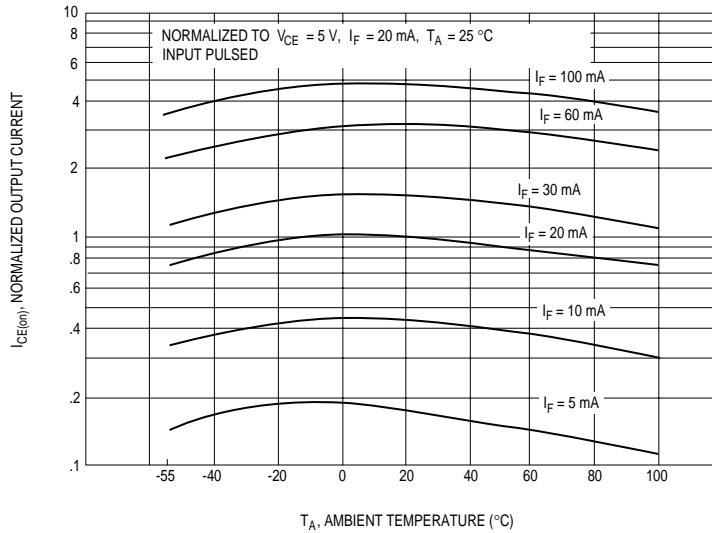


Figure 3. $V_{CE(SAT)}$ vs. Temperature

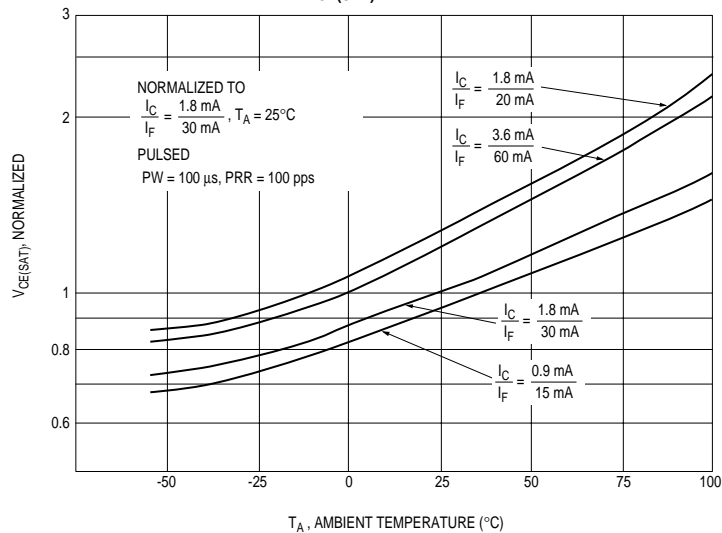


Figure 4. Leakage Current vs. Temperature

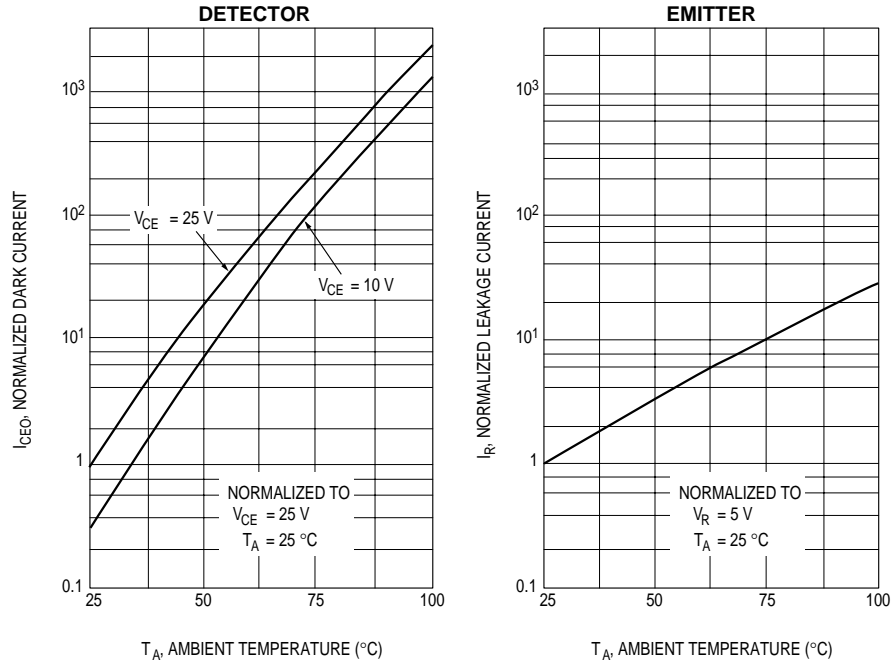


Figure 5. Switching Speed vs. R_L

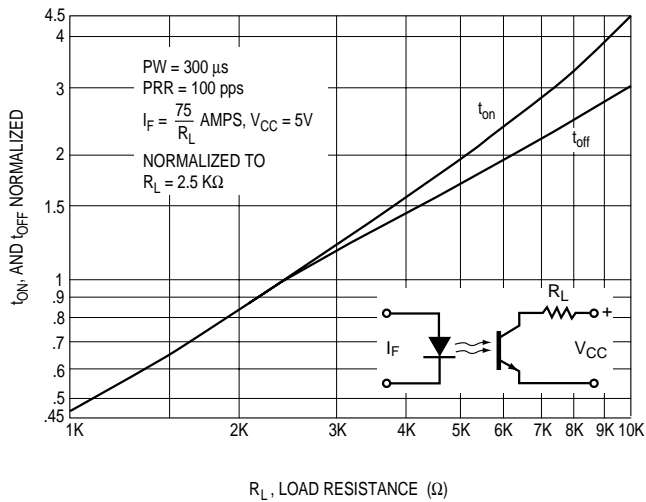
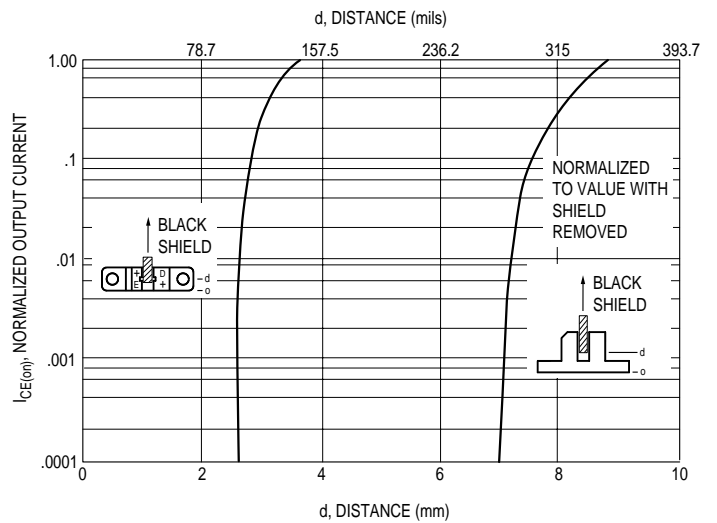


Figure 6. Output Current vs. Distance



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