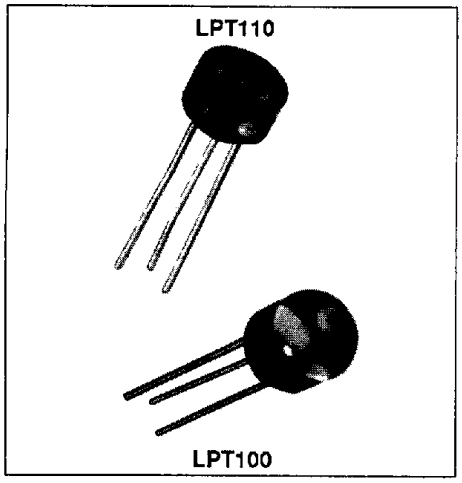
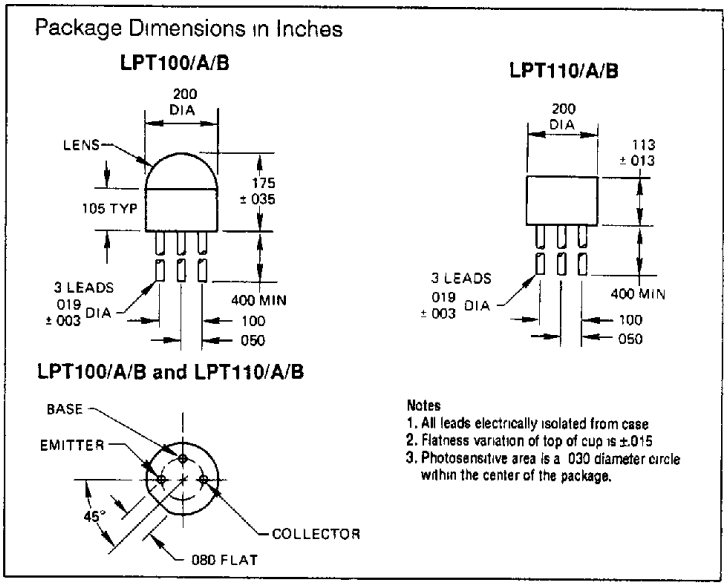
SIEMENS

LPT100/100A/100B
LPT110/110A/110B
PHOTOTRANSISTOR

T-41-61





FEATURES

- **Collector Dark Current 0.25 nA Typ.**
- **Responsivity**
  0.6 µA/mW/cm² Min (Tungsten)
  1.8 µA/mW/cm² Min (GaAs)
- **Photo Current**
  0.2 mA Min (Tungsten)
  0.6 mA Min (GaAs)
- **Rise and Fall Time 2.8 µs Typ**
- **Applications**
  Position Detector, Intrusion Alarm Sensor, Optical Tachometer

Maximum Ratings

Maximum Temperature/Humidity
- Storage Temperature . . ..-55°C to +100°C
- Operating Junction Temperature .. . -55°C to +85°C
- Relative Humidity at Temperature . . 98% at +65°C

Maximum Power Dissipation [1,2]
- Total Dissipation at +25°C Case Temperature .. .200 mW
- Total Dissipation at +25°C Ambient Temperature . . . . .100 mW

Maximum Voltages [5]
- BV_{CBO} Collector to Base Voltage . . ..50 V
- LV_{CEO} Collector to Emitter Sustaining Voltage .. .30 V

Maximum Current
- I_C Collector Current .. .. 100 mA

Notes
1 These are steady state limits The factory should be consulted on applications involving pulsed or low duty cycle operations
2 These ratings give a maximum junction temperature of +85°C and junction to case thermal resistance of +300°C/W (derating factor of 3 33 mW/°C) and a junction to ambient thermal resistance of +600°C/W (derating factor of 1 67 mW/°C)
3 Measured with radiation flux intensity of less than 0 1 µW/cm² over the spectrum from 100 to 1500 nm
4 Measured at noted irradiance as emitted from a tungsten filament lamp at a color temperature of 2854° K
5 No electrical connection to emitter lead
6. Measured with a tungsten lamp (2854° K) with a 950 nm filter
7 No electrical connection to base lead
8 Rise time is defined as the time required for I_{CE} to rise from 10% to 90% peak value Fall time is defined as the time required for I_{CE} to decrease from 90% to 10% of peak value Test conditions are I_{CE}=4 0 mA, V_{CE}=5 0 V, R_L=100 Ohms, GaAs Source

Characteristics (T_{amb}=25°C)

		Min.	Typ.	Max.	
Collector Dark Current [3] (V_{CB}=10 V)	I_{CBO}		0.25	25	nA
Collector Dark Current [3] (65°C) (V_{CB}=10 V)	I_{CBO}		0 025	0 5	µA
Collector Dark Current [3] (V_{CE}=5 0 V)	I_{CEO}		2.0	100	nA
Responsivity (Tungsten) [4,5] (V_{CB}=10 V)	R_{CB}				µA/mW/cm²
LPT100/A/B		0 6	1 6		
LPT110/A/B		0 6	1 0		
Responsivity (GaAs) [5,6] (V_{CB}=10 V)	R_{CB}				µA/mW/cm²
LPT100/A/B		1 8	4 8		
LPT110/A/B		1.8	3 0		
Photocurrent (Tungsten) [4,7] (V_{CE}=5 0 V, H=5.0 mW/cm²)	$I_{CE(L)}$				mA
LPT100		0 2	1 4		
LPT110		0 2	2 1		
LPT100A		1.0	2 0	3 0	
LPT110A		0 6	1 2	1 8	
LPT100B		1 3	2.0	2 6	
LPT110B		0 8	1.2	1 6	
Photocurrent (GaAs) [6,7] (V_{CE}=5 0 V, H=5 0 mW/cm²)	$I_{CE(L)}$				mA
LPT100/A/B		0 6	4.2		
LPT110/A/B		0 6	2 7		
Light Current Rise Time [8]	t_R, t_F		2 8		µs
Collector to Emitter [4] Saturation Voltage (I_C=500 µA, H=20 mW/Cm²)	$V_{CE(SAT)}$		0 16	0 4	
Collector to Base Breakdown [3] Voltage (I_C=100 µA)		50	120		V
Collector to Emitter [3] Sustaining Voltage (I_C=1 0 mA)	LV_{CEO}	30	50		V
Emitter to Collector [3] Breakdown (I_{EC}=100 µA)	BV_{ECO}		7.0		V

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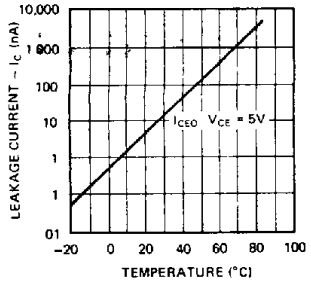
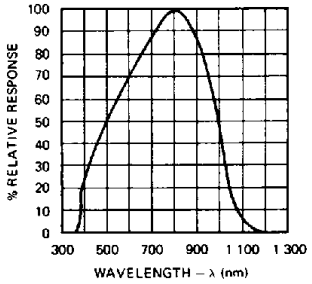
TYPICAL OPTOELECTRONIC CHARACTERISTICS

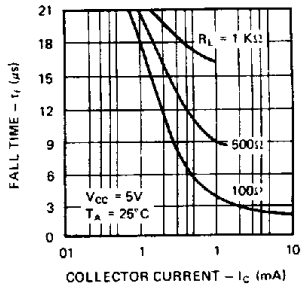
COLLECTOR DARK CURRENT VS TEMPERATURE



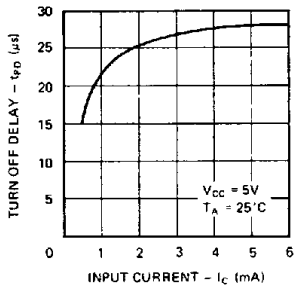
SPECTRAL CHARACTERISTICS



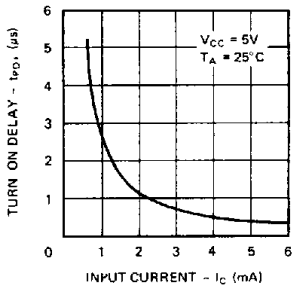
RISE AND FALL TIME VS COLLECTOR CURRENT



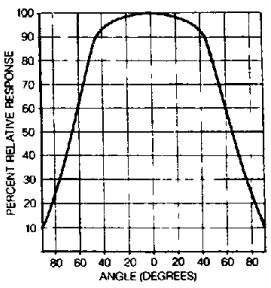
TURN-OFF DELAY TIMES FOR CURRENT



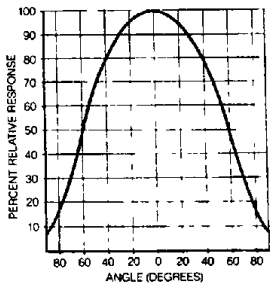
TURN-ON DELAY TIMES FOR CURRENT



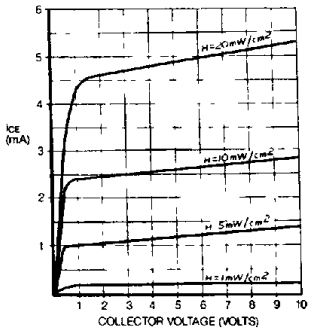
ANGULAR RESPONSE (LPT100 A/B)



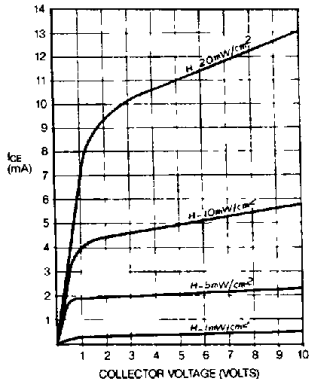
ANGULAR RESPONSE (LPT110 A/B)



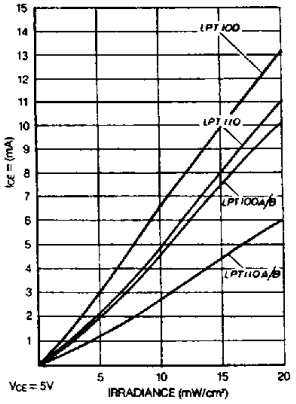
I_{CE} versus V_{CC} (LPT110 A/B)



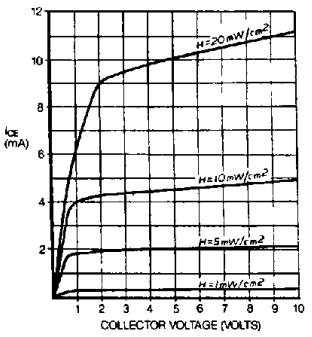
I_{CE} versus V_{CC} (LPT110)



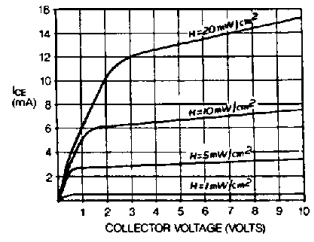
I_{CE} versus IRRADIANCE



I_{CE} versus V_{CC} (LPT100 A/B)



I_{CE} versus V_{CC} (LPT100)



BASE CURRENT versus IRRADIANCE