

# Light Detector Planar Silicon Photo-Darlington Amplifier


## **NPN 2N5777-80**

absolute maximum ratings: (25°C) (unless otherwise specified)

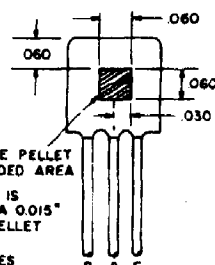
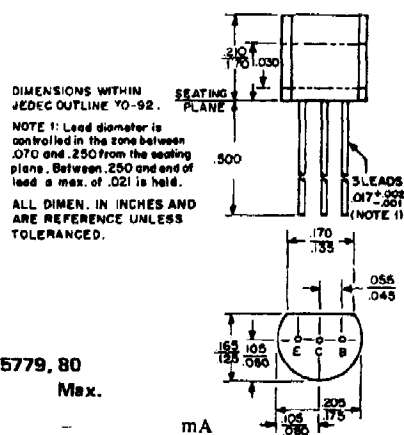
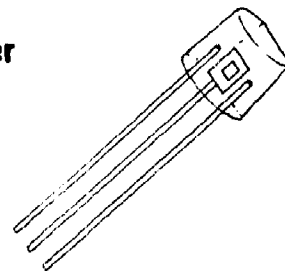
		2N5777, 79 (L14D1,3)	2N5778, 80 (L14D2,4)		
<b>Voltages—Dark Characteristics</b>	Collector to Emitter	V <sub>CEO</sub>	25	40	Volts
	Collector to Base	V <sub>CBO</sub>	25	40	Volts
	Emitter to Base	V <sub>EBO</sub>	8	12	Volts
<b>Current</b>	Light Current	I <sub>L</sub>	250	250	mA
<b>Dissipation</b>	Power Dissipation*	P <sub>T</sub>	200	200	mW
<b>Temperature</b>	Junction Temperature	T <sub>J</sub>	↔ 100°C ↔		
	Storage Temperature	T <sub>stg</sub>	↔ - 65°C to +100°C ↔		

\*Derate 2.67mW/°C above 25°C ambient

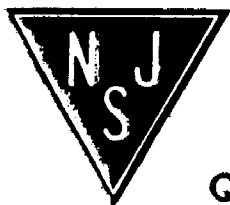
electrical characteristics: (25°C) (unless otherwise specified)

Static Characteristics		2N5777, 78		2N5779, 80		
		Min.	Max.	Min.	Max.	
Light Current ( $V_{CE} = 5V$ , $H = 2mW/cm^2$ **)	$I_L$	0.5	—	2.0	—	mA
Forward Current Transfer Ratio ( $V_{CE} = 5V$ , $I_C = 2.0mA$ )	$h_{FE}$	1.0k	—	2.0k	—	
		2N5777, 79		2N5778, 80		
		Min.	Max.	Min.	Max.	
Dark Current ( $V_{CE} = 12V$ , $I_B = 0$ )	$I_D$	—	100	—	100	nA
Collector-Emitter Breakdown Voltage ( $I_C = 10mA$ , $H = 0$ )	$V_{(BR)CEO}$	25	—	40	—	Volts
Collector-Base Breakdown Voltage ( $I_C = 100\mu A$ , $H = 0$ )	$V_{(BR)CBO}$	25	—	40	—	Volts
Emitter-Base Breakdown Voltage ( $I_E = 100\mu A$ , $H = 0$ )	$V_{(BR)EBO}$	8	—	12	—	Volts
Dynamic Characteristics		2N5777-80				
		Min.	Typ.	Max.		
Switching Speeds ( $V_{CE} = 10V$ , $I_L = 10mA$ , $R_L = 100$ ohms, GaAs LED source)						
Delay Time	$t_d$	—	30	100	$\mu sec.$	THE 0.024" SQUARE PELLE IS WITHIN THE SHADED AREA  THE ACTIVE AREA IS CENTERED WITHIN A 0.015" SQUARE ON THE PELLE SURFACE  DIMENSIONS IN INCHES
Rise Time	$t_r$	—	75	250	$\mu sec.$	
Storage Time	$t_s$	—	0.5	5	$\mu sec.$	
Fall Time	$t_f$	—	45	150	$\mu sec.$	
Collector-Base Capacitance ( $V_{CB} = 10V$ , $f = 1MHz$ )	$C_{cb}$	—	7.6	10	pF	
Emitter-Base Capacitance ( $V_{EB} = 0.5V$ , $f = 1MHz$ )	$C_{eb}$	—	10.5	—	pF	
Collector-Emitter Capacitance ( $V_{CEO} = 10V$ , $f = 1MHz$ )	$C_{ceo}$	—	3.4	—	pF	

\*\*H = Radiation Flux Density. Radiation source is an unfiltered tungsten filament bulb at 2870°K color temperature.



PELLET LOCATION



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