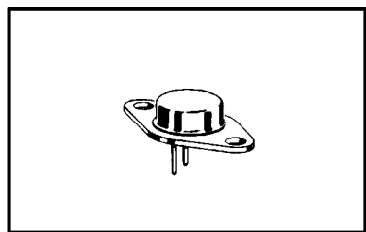


## DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS

...designed for general-purpose amplifier, low-frequency switching and hammer driver applications.

- **High DC Current Gain -**  
 $h_{FE} = 3000$  (Typ) @  $I_C = 2.0$  Adc
- **Low Collector-Emitter Saturation Voltage -**  
 $V_{CE(sat)} = 2.0$  Vdc (Max) @  $I_C = 2.0$  Adc
- **Collector-Emitter Sustaining Voltage**  
 $V_{CEO(sus)} = 60$  Vdc (Min) - 2N6294, 2N6296  
 $= 80$  Vdc (Min) - 2N6295, 2N6297
- **Monolithic Construction with Built-In Base-Emitter Shunt Resistors**

**4 AMPERE  
DARLINGTON  
COMPLEMENTARY SILICON  
POWER TRANSISTORS  
60, 80 VOLTS  
50 WATTS**

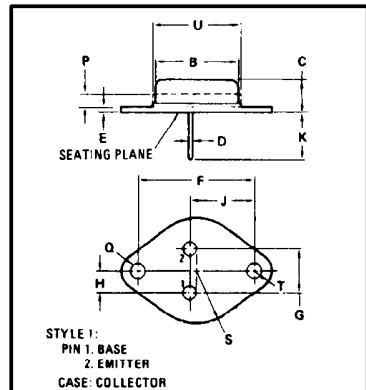


### MAXIMUM RATINGS

Rating	Symbol	2N6294 2N6296	2N6295 2N6297	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	80	Vdc
Collector-Base Voltage	$V_{CB}$	60	80	Vdc
Emitter-Base Voltage	$V_{EB}$	5.0		Vdc
Collector Current - Continuous	$I_C$	4.0		Adc
- Peak		8.0		
Base Current	$I_B$	80		mAdc
Total Power Dissipation @ $T_C = 25^\circ\text{C}$	$P_D$	50		Watts
Derate above $25^\circ\text{C}$		0.286		$\text{W}/^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{sig}$	-65 to +200		$^\circ\text{C}$

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.5	$^\circ\text{C}/\text{W}$

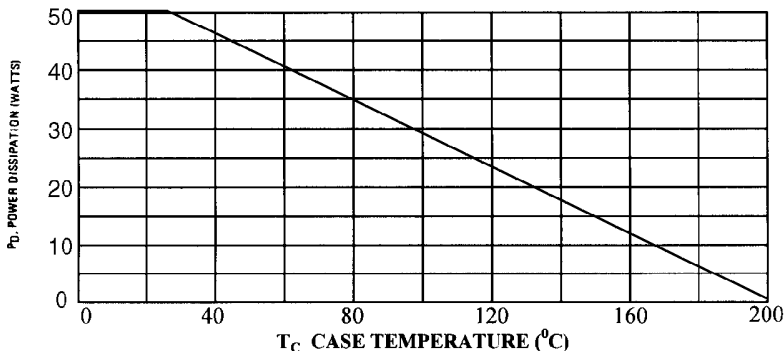


DIM	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
B	11.94	12.70	0.470	0.500
C	6.35	8.64	0.250	0.340
D	0.71	0.86	0.028	0.034
E	1.27	1.91	0.050	0.075
F	24.33	24.43	0.958	0.962
G	4.83	5.33	0.190	0.210
H	2.41	2.67	0.095	0.105
J	14.48	14.99	0.570	0.590
K	9.14	-	0.360	-
P	-	1.27	-	0.050
Q	3.61	3.86	0.142	0.152
S	-	8.89	-	0.350
T	-	3.68	-	0.145
U	-	15.75	-	0.620

All JEDEC Dimensions and Notes Apply

**TO-66**

FIGURE 1 -- POWER DERATING





**NEW ENGLAND SEMICONDUCTOR**

<b>NPN</b>	<b>PNP</b>
2N6294	2N6296
2N6295	2N6297

\*ELECTRICAL CHARACTERISTICS ( $T_C = 25^{\circ}\text{C}$  unless otherwise noted)

Characteristics	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Sustaining Voltage $I_C = 50 \text{ mAdc}, I_B = 0$	$V_{CE(SUS)}$	60 80		Vdc
Collector Cutoff Current $V_{CE} = 30 \text{ Vdc}, I_B = 0$ $V_{CE} = 40 \text{ Vdc}, I_B = 0$	$I_{CEO}$		0.5 0.5	mAdc
Collector Cutoff Current $V_{CE} = \text{Rated } V_{CB}, V_{EB(off)} = 1.5 \text{ Vdc}$ $V_{CE} = \text{Rated } V_{CB}, V_{BE(off)} = 1.5 \text{ Vdc}$ $V_{CE} = \text{Rated } V_{CB}, V_{EB(off)} = 1.5 \text{ Vdc}$ $T_C = 150^{\circ}\text{C}$ $V_{CE} = \text{Rated } V_{CB}, V_{BE(off)} = 1.5 \text{ Vdc}$ $T_C = 150^{\circ}\text{C}$	$I_{CEX}$		0.5 0.5 5.0 5.0	mAdc
Emitter Cutoff Current $V_{BE} = 5.0 \text{ Vdc}, I_C = 0$	$I_{EBO}$		2.0	mAdc
<b>ON CHARACTERISTICS (I)</b>				
DC Current Gain $I_C = 2.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$ $I_C = 4.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$	$h_{FE}$	750 100	18000	
Collector-Emitter Saturation Voltage $I_C = 2.0 \text{ Adc}, I_B = 8.0 \text{ mAdc}$ $I_C = 4.0 \text{ Adc}, I_B = 40 \text{ mAdc}$	$V_{CE(sat)}$		2.0 3.0	Vdc
Base-Emitter Saturation Voltage $I_C = 4.0 \text{ Adc}, I_B = 40 \text{ mAdc}$	$V_{BE(sat)}$		4.0	Vdc
Base-Emitter On Voltage $I_C = 2.0 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}$	$V_{BE(on)}$		2.8	Vdc
<b>DYNAMIC CHARACTERISTICS</b>				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.5 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ Mhz}$	$ h_{fe} $	4.0		
Output Capacitance $V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 0.1 \text{ Mhz}$	$C_{ob}$		120 200	$\text{p}^{\text{f}}$
Small-Signal Current Gain $I_C = 1.5 \text{ Adc}, V_{CE} = 3.0 \text{ Vdc}, f = 1.0 \text{ kHz}$	$h_{fe}$	300		

\*Indicates JEDEC registered data

FIGURE 2 - SWITCHING TIMES TEST CIRCUIT

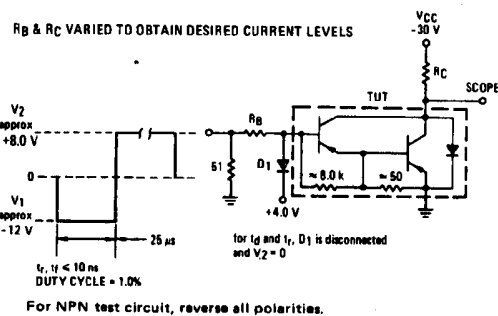
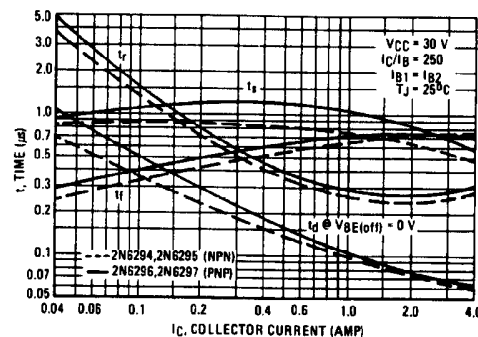


FIGURE 3 - SWITCHING TIMES



NEW ENGLAND SEMICONDUCTOR

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