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NEW ENGLAND SEMICONDUCTOR

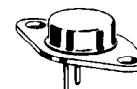
NPN	PNP
2N6294	2N6296
2N6295	2N6297

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



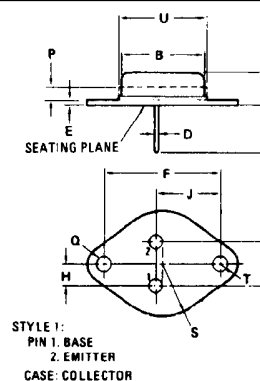
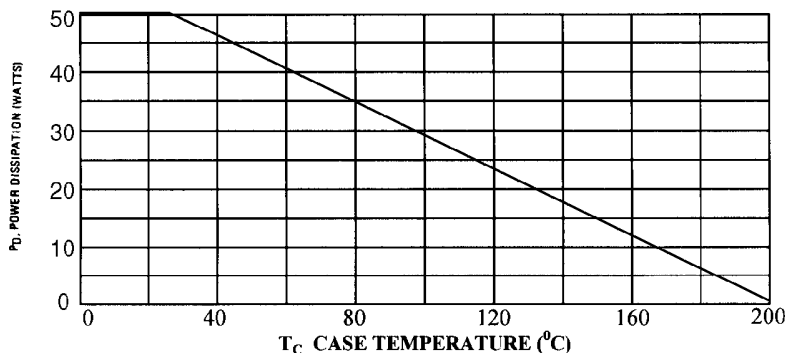
MAXIMUM RATINGS

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°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	$^\circ\text{C}/\text{W}$

FIGURE 1 -- POWER DERATING



	MILLIMETER		INCHES	
DIM	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

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6 Lake Street Lawrence, MA 01841
1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-352 REV: --



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2N6294	2N6296
2N6295	2N6297

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

Characteristics	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage $I_C = 50 \text{ mAde}$, $I_B = 0$	$V_{CEO(SUS)}$	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	mAde
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	mAde
Emitter Cutoff Current $V_{BE} = 5.0 \text{ Vdc}$, $I_C = 0$	I_{EBO}		2.0	mAde
ON CHARACTERISTICS (1)				
DC Current Gain $I_C = 2.0 \text{ Ade}$, $V_{CE} = 3.0 \text{ Vdc}$ $I_C = 4.0 \text{ Ade}$, $V_{CE} = 3.0 \text{ Vdc}$	h_{FE}	750 100	18000	
Collector-Emitter Saturation Voltage $I_C = 2.0 \text{ Ade}$, $I_B = 8.0 \text{ mAde}$ $I_C = 4.0 \text{ Ade}$, $I_B = 40 \text{ mAde}$	$V_{CE(sat)}$		2.0 3.0	Vdc
Base-Emitter Saturation Voltage $I_C = 4.0 \text{ Ade}$, $I_B = 40 \text{ mAde}$	$V_{BE(sat)}$		4.0	Vdc
Base-Emitter On Voltage $I_C = 2.0 \text{ Ade}$, $V_{CE} = 3.0 \text{ Vdc}$	$V_{BE(on)}$		2.8	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio $I_C = 1.5 \text{ Ade}$, $V_{CE} = 3.0 \text{ Vdc}$, $f = 1.0 \text{ Mhz}$	$ h_{fe} $	4.0		
Output Capacitance $V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 0.1 \text{ Mhz}$	C_{ob}		120 200	p ^r
Small-Signal Current Gain $I_C = 1.5 \text{ Ade}$, $V_{CE} = 3.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$	h_{fe}	300		

*Indicates JEDEC registered data

FIGURE 2 – SWITCHING TIMES TEST CIRCUIT

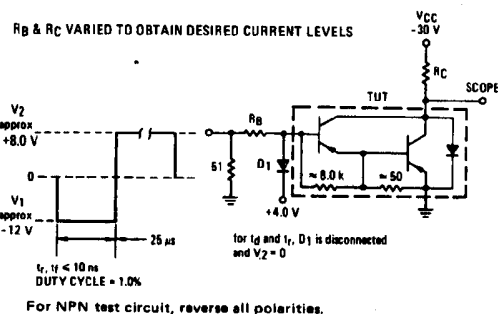
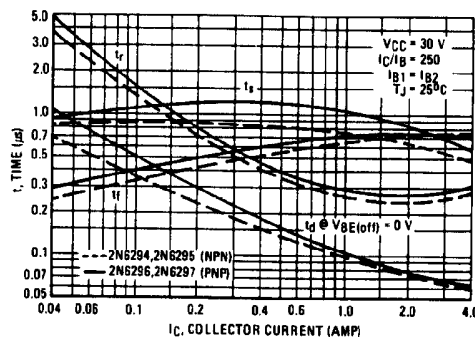


FIGURE 3 – SWITCHING TIMES



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