

# New Jersey Semi-Conductor Products, Inc.

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## DARLINGTON COMPLEMENTARY SILICON POWER TRANSISTORS

General-purpose power amplifier and low frequency switching applications

### FEATURES:

\* Low Collector-Emitter Saturation Voltage -

$$V_{CE(SAT)} = 2.0V(\text{Max.}) @ I_C = 4.0A$$

$$= 3.0V(\text{Max.}) @ I_C = 8.0A$$

\* Monolithic Construction With Built-In Base-Emitter Shunt Resistors

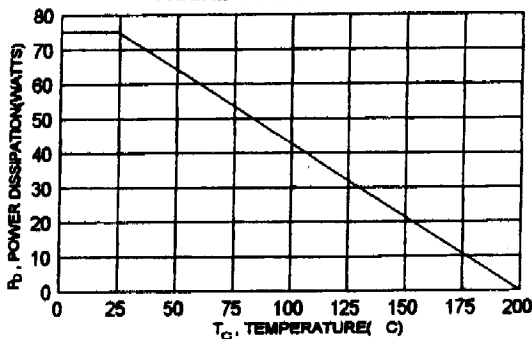
### MAXIMUM RATINGS

Characteristic	Symbol	2N6298 2N6300	2N6299 2N6301	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	80	V
Collector-Base Voltage	$V_{CBO}$	60	80	V
Emitter-Base Voltage	$V_{EBO}$	5.0		V
Collector Current-Continuous -Peak	$I_C$ $I_{CM}$	8.0 16		A
Base Current	$I_B$	120		mA
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	75 0.428		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +200		$^\circ\text{C}$

### THERMAL CHARACTERISTICS

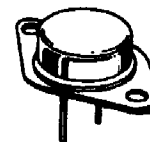
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.33	$^\circ\text{C/W}$

FIGURE -1 POWER DERATING

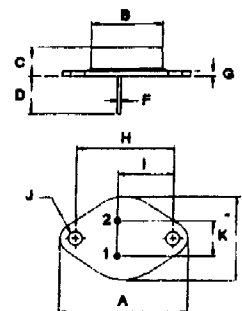


PNP	NPN
2N6298	2N6300
2N6299	2N6301

DARLINGTON  
 8 AMPERE  
 COMPLEMENTARY SILICON  
 POWER TRANSISTORS  
 60 - 80 Volts  
 75 Watts



TO-66



PIN 1, BASE  
 2, EMITTER  
 COLLECTOR (CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	30.60	32.52
B	13.85	14.16
C	6.54	7.22
D	9.50	10.50
E	17.28	18.46
F	0.78	0.92
G	1.38	1.65
H	24.16	24.78
I	13.84	15.60
J	3.32	3.92
K	4.88	5.34

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2N6298, 2N6299 PNP / 2N6300, 2N6301 NPN

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

Characteristic	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector - Emitter Sustaining Voltage (1) ( $I_C = 100\text{ mA}$ , $I_B = 0$ )	2N6298, 2N6300 2N6299, 2N6301	$V_{CEO(sus)}$	60 80	V
Collector Cutoff Current ( $V_{CE} = 30\text{ V}$ , $I_B = 0$ ) ( $V_{CE} = 40\text{ V}$ , $I_B = 0$ )	2N6298, 2N6300 2N6299, 2N6301	$I_{CEO}$	0.5 0.5	mA
Collector Cutoff Current ( $V_{CE} = 60\text{ V}$ , $V_{BE(off)} = 1.5\text{ V}$ ) ( $V_{CE} = 80\text{ V}$ , $V_{BE(off)} = 1.5\text{ V}$ ) ( $V_{CE} = 60\text{ V}$ , $V_{BE(off)} = 1.5\text{ V}$ , $T_c = 150^\circ\text{C}$ ) ( $V_{CE} = 80\text{ V}$ , $V_{BE(off)} = 1.5\text{ V}$ , $T_c = 150^\circ\text{C}$ )	2N6298, 2N6300 2N6299, 2N6301 2N6298, 2N6300 2N6299, 2N6301	$I_{CEX}$	0.5 0.5 5.0 5.0	mA
Emitter Cutoff Current ( $V_{EB} = 5.0\text{ V}$ , $I_C = 0$ )		$I_{EBO}$	2.0	mA

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 4.0\text{ A}$ , $V_{CE} = 3.0\text{ V}$ ) ( $I_C = 8.0\text{ A}$ , $V_{CE} = 3.0\text{ V}$ )		$h_{FE}$	750 100	18000	
Collector-Emitter Saturation Voltage ( $I_C = 4.0\text{ A}$ , $I_B = 16\text{ mA}$ ) ( $I_C = 8.0\text{ A}$ , $I_B = 80\text{ mA}$ )		$V_{CE(sat)}$		2.0 3.0	V
Base-Emitter On Voltage ( $I_C = 4\text{ A}$ , $V_{CE} = 3.0\text{ V}$ )		$V_{BE(on)}$		2.8	V
Base-Emitter Saturation Voltage ( $I_C = 8.0\text{ A}$ , $I_B = 80\text{ mA}$ )		$V_{BE(sat)}$		4.0	V

**DYNAMIC CHARACTERISTICS**

Output Capacitance ( $V_{CB} = 10\text{ V}$ , $I_E = 0$ , $f = 0.1\text{ MHz}$ )	2N6298, 2N6299 2N6300, 2N6301	$C_{ob}$		300 200	pF
Small-Signal Current Gain ( $I_C = 3.0\text{ A}$ , $V_{CE} = 3.0\text{ V}$ , $f = 1.0\text{ KHz}$ )		$h_{fe}$	300		

(1) Pulse Test: Pulse width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$