



COMPLEMENTARY DARLINGTON

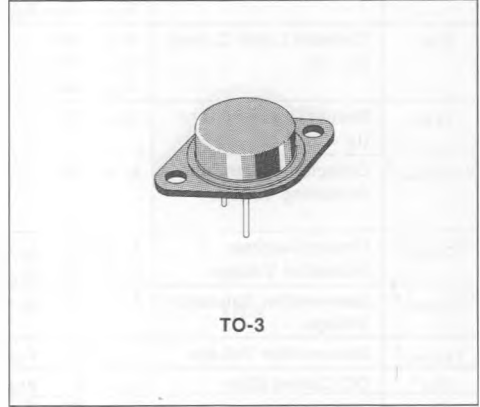
- HIGH GAIN
- HIGH CURRENT
- HIGH DISSIPATION

DESCRIPTION

The 2N6050, 2N6051 and 2N6052 are silicon epitaxial base PNP transistors in monolithic Darlington configuration mounted in Jedec TO-3 metal case.

They are intended for use in power linear and low frequency switching applications.

The complementary NPN types are the 2N6057, 2N6058 and 2N6059 respectively.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	PNP NPN	Value			Unit
			2N6050 2N6057	2N6051 2N6058	2N6052 2N6059	
V_{CBO}	Collector-base Voltage ($I_E = 0$)		60	80	100	V
V_{CEX}	Collector-emitter Voltage ($V_{BE} = -1.5V$)		60	80	100	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)		60	80	100	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)		5			V
I_C	Collector Current		12			A
I_{CM}	Collector Peak Current		20			A
I_B	Base Current		0.2			mA
P_{Tot}	Total Dissipation at $T_C < 25^\circ C$		150			W
T_{stg}	Storage Temperature		- 65 to 200			$^\circ C$
T_J	Max. Operating Junction Temperature		200			$^\circ C$

For PNP types voltage and current value are negative.

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	max	1.17	°C/W
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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEX}	Collector Cutoff Current	$V_{CE} = V_{CEX}$ $V_{BE} = -1.5\text{V}$ $V_{CE} = V_{CEX}$ $V_{BE} = -1.5\text{V}$ $T_c = 150^{\circ}\text{C}$			500 5	μA mA
I_{CEO}	Collector Cutoff Current ($I_B = 0$)	$V_{CE} = 30\text{V}$ for 2N6050/57 $V_{CE} = 40\text{V}$ for 2N6051/58 $V_{CE} = 50\text{V}$ for 2N6052/59			1 1 1	mA mA mA
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 5\text{V}$			2	mA
$V_{CEO(sus)}^*$	Collector-emitter Sustaining Voltage	$I_C = 0.1\text{A}$ for 2N6050/57 for 2N6051/58 for 2N6052/59	60 80 100			V V V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 6\text{A}$ $I_B = 24\text{mA}$ $I_C = 12\text{A}$ $I_B = 120\text{mA}$			2 3	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 12\text{A}$ $I_B = 120\text{mA}$			4	V
$V_{BE(on)}^*$	Base-emitter Voltage	$I_C = 6\text{A}$ $V_{CE} = 3\text{V}$			2.8	V
h_{FE}^*	DC Current Gain	$I_C = 6\text{A}$ $V_{CE} = 3\text{V}$ $I_C = 12\text{A}$ $V_{CE} = 3\text{V}$	750 100			
f_T	Transition Frequency	$I_C = 5\text{A}$ $V_{CE} = 3\text{V}$ $f = 1\text{MHz}$	4			MHz

* Pulsed : pulse duration = 300 μs , duty cycle = 1.5%.
For PNP types voltage and current values are negative.