

NPN 2N6057 – 2N6058 – 2N6059

COMPLEMENTARY SILICON DARLINGTON POWER TRANSISTORS

The 2N6057, 2N6058 and 2N6059 are silicon epitaxial-base 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 PNP types are 2N6050, 2N6051 and 2N6052 respectively.

Compliance to RoHS.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings			Value	Unit
V_{CBO}	Collector-Base Voltage	$I_E=0$	2N6050	60	V
			2N6051	80	
			2N6052	100	
V_{CEO}	Collector-Emitter Voltage	$I_B=0$	2N6050	60	V
			2N6051	80	
			2N6052	100	
V_{CEX}	Collector-Emitter Voltage	$V_{BE}=1.5\text{ V}$	2N6050	60	V
			2N6051	80	
			2N6052	100	
V_{EBO}	Emitter-Base Voltage	$I_C=0$		5.0	V
I_C	Collector Current			12	A
I_{CM}	Collector Peak Current			20	A
I_B	Base Current			200	mA
P_T	Power Dissipation	@ $T_C < 25^\circ$		150	W
T_J	Junction Temperature			200	$^\circ\text{C}$
T_s	Storage Temperature			-65 to +200	

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-C}	Thermal Resistance, Junction to Case		1.17	$^\circ\text{C/W}$

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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

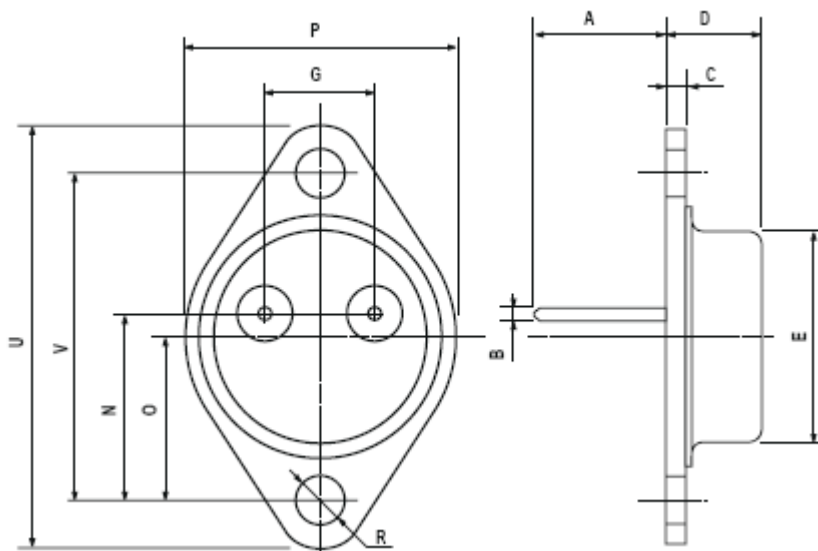
Symbol	Ratings	Test Condition(s)	Min	Typ	MAx	Unit
I_{CEX}	Collector Cutoff Current	$V_{CE} = V_{CEX} = 60\text{ V}$, $V_{BE} = -1.5\text{ V}$	2N6050	-	-	500 μA
		$V_{CE} = V_{CEX} = 80\text{ V}$, $V_{BE} = -1.5\text{ V}$	2N6051	-	-	
		$V_{CE} = V_{CEX} = 100\text{ V}$ $V_{BE} = -1.5\text{ V}$	2N6052	-	-	
		$V_{CE} = V_{CEX} = 60\text{ V}$, $V_{BE} = -1.5\text{ V}$ $T_C = 150^\circ\text{C}$	2N6050	-	-	5 mA
		$V_{CE} = V_{CEX} = 80\text{ V}$, $V_{BE} = -1.5\text{ V}$ $T_C = 150^\circ\text{C}$	2N6051	-	-	
		$V_{CE} = V_{CEX} = 100\text{ V}$ $V_{BE} = -1.5\text{ V}$, $T_C = 150^\circ\text{C}$	2N6052	-	-	
I_{CEO}	Collector Cutoff Current	$V_{CE} = 30\text{ Vdc}$, $I_B = 0$	2N6050	-	-	1.0 mA
		$V_{CE} = 40\text{ Vdc}$, $I_B = 0$	2N6051	-	-	
		$V_{CE} = 50\text{ Vdc}$, $I_B = 0$	2N6052	-	-	
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5\text{ V}$	2N6050	-	-	2.0 mA
			2N6051	-	-	
			2N6052	-	-	
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (*)	$I_C = 0.1\text{ A}$	2N6050	60	-	V
			2N6051	80	-	
			2N6052	100	-	
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = 6\text{ A}$, $I_B = 24\text{ mA}$	2N6050	-	-	2.0 V
			2N6051			
			2N6052			
		$I_C = 12\text{ A}$, $I_B = 120\text{ mA}$	2N6050	-	-	3.0 V
			2N6051			
			2N6052			
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage (*)	$I_C = 12\text{ A}$, $I_B = 120\text{ mA}$	2N6050	-	-	4 V
			2N6051			
			2N6052			
$V_{BE(ON)}$	Base-Emitter Voltage (*)	$I_C = 6\text{ A}$, $V_{CE} = 3\text{ V}$	2N6050	-	-	2.8 V
			2N6051			
			2N6052			
f_T	Transition Frequency	$I_C = 5\text{ A}$, $V_{CE} = 3\text{ V}$, $f = 1\text{ MHz}$	2N6050	4	-	MHz
			2N6051			
			2N6052			
h_{FE}	DC Current Gain (*)	$V_{CE} = 3\text{ V}$, $I_C = 6.0\text{ A}$	2N6050	750	-	18000 -
			2N6051			
			2N6052			
		$V_{CE} = 3.0\text{ V}$, $I_C = 12\text{ A}$	2N6050	100	-	-
			2N6051			
			2N6052			

(*) Pulse Width $\approx 300\text{ }\mu\text{s}$, Duty Cycle $\angle 2.0\%$

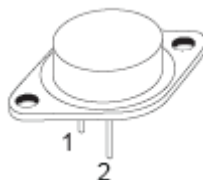
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MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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