



2N6050/51/52
2N6057/58/59

POWER COMPLEMENTARY SILICON TRANSISTORS

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 2N6057, 2N6058 and 2N6059 respectively.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings			Value	Unit
V_{CBO}	<i>Collector-Base Voltage</i>	$I_E=0$	2N6050 2N6057	60	V
			2N6051 2N6058	80	
			2N6052 2N6059	100	
V_{CEO}	<i>Collector-Emitter Voltage</i>	$I_B=0$	2N6050 2N6057	60	V
			2N6051 2N6058	80	
			2N6052 2N6059	100	
V_{CEX}	<i>Collector-Emitter Voltage</i>	$V_{BE}=-1.5\text{ V}$	2N6050 2N6057	60	V
			2N6051 2N6058	80	
			2N6052 2N6059	100	
V_{EBO}	<i>Emitter-Base Voltage</i>	$I_C=0$	2N6050 2N6057	5.0	V
			2N6051 2N6058		
			2N6052 2N6059		



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I_C	Collector Current	2N6050	12	A
		2N6057		
		2N6051		
		2N6058		
		2N6052		
2N6059				
I_{CM}	Collector Peak Current	2N6050	20	A
		2N6057		
		2N6051		
		2N6058		
		2N6052		
2N6059				
I_B	Base Current	2N6050	0.2	mA
		2N6057		
		2N6051		
		2N6058		
		2N6052		
2N6059				
P_T	Power Dissipation	@ $T_C < 25^\circ$	150	Watts
		2N6050		
		2N6057		
		2N6051		
		2N6058		
2N6052				
2N6059				
$T_J T_s$	Junction Storage Temperature	2N6050	200 -65 to +200	°C
		2N6057		
		2N6051		
		2N6058		
		2N6052		
2N6059				

THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit
R_{thJ-C}	Thermal Resistance, Junction to Case	2N6050	1.17	°C/W
		2N6057		
		2N6051		
		2N6058		
		2N6052		
2N6059				



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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	Mx	Unit			
I_{CEX}	Collector Cutoff Current	$V_{CE} = V_{CEX} = 60 \text{ V}, V_{BE} = -1.5 \text{ V}$	2N6050 2N6057	-	-	500	μA		
		$V_{CE} = V_{CEX} = 80 \text{ V}, V_{BE} = -1.5 \text{ V}$	2N6051 2N6058	-	-				
		$V_{CE} = V_{CEX} = 100 \text{ V}, V_{BE} = -1.5 \text{ V}$	2N6052 2N6059	-	-				
				$V_{CE} = V_{CEX} = 60 \text{ V}, V_{BE} = -1.5 \text{ V}, T_C = 150^\circ\text{C}$	2N6050 2N6057	-	-	5	mA
				$V_{CE} = V_{CEX} = 80 \text{ V}, V_{BE} = -1.5 \text{ V}, T_C = 150^\circ\text{C}$	2N6051 2N6058	-	-		
				$V_{CE} = V_{CEX} = 100 \text{ V}, V_{BE} = -1.5 \text{ V}, T_C = 150^\circ\text{C}$	2N6052 2N6059	-	-		
I_{CEO}	Collector Cutoff Current	$V_{CE} = 30 \text{ Vdc}, I_B = 0$	2N6050 2N6057	-	-	1.0	mA		
		$V_{CE} = 40 \text{ Vdc}, I_B = 0$	2N6051 2N6058	-	-				
		$V_{CE} = 50 \text{ Vdc}, I_B = 0$	2N6052 2N6059	-	-				
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 5 \text{ V}$	2N6050 2N6057	-	-	2.0	mA		
			2N6051 2N6058	-	-				
			2N6052 2N6059	-	-				
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage (*)	$I_C = 0.1 \text{ A}$	2N6050 2N6057	60	-	-	V		
			2N6051 2N6058	80	-	-			
			2N6052 2N6059	100	-	-			

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$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C=6\text{ A}, I_B=24\text{ mA}$	2N6050	-	-	2.0	V
			2N6057				
			2N6051 2N6058				
		$I_C=12\text{ A}, I_B=120\text{ mA}$	2N6052				
			2N6059				
			2N6050 2N6057				
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage (*)	$I_C=12\text{ A}, I_B=120\text{ mA}$	2N6050	-	-	4	V
			2N6057				
			2N6051				
			2N6058				
			2N6052 2N6059				
$V_{BE(ON)}$	Base-Emitter Voltage (*)	$I_C=6\text{ A}, V_{CE}=3\text{ V}$	2N6050	-	-	2.8	V
			2N6057				
			2N6051 2N6058				
			2N6052 2N6059				
f_T	Transition Frequency	$I_C=5\text{ A}, V_{CE}=3\text{ V}, f=1\text{ MHz}$	2N6050	4	-	-	MHz
			2N6057				
			2N6051 2N6058				
			2N6052 2N6059				
h_{FE}	DC Current Gain (*)	$V_{CE}=3\text{ V}, I_C=6.0\text{ A}$	2N6050	750	-	18000	-
			2N6057				
			2N6051 2N6058				
			2N6052 2N6059				
		$V_{CE}=3.0\text{ V}, I_C=12\text{ A}$	2N6050	100	-	-	
			2N6057				
			2N6051 2N6058				
			2N6052 2N6059				

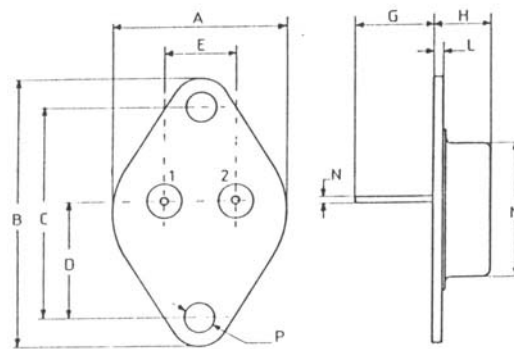
!!! For PNP types current and voltage values are negative !!!

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

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MECHANICAL DATA CASE TO-3

DIMENSIONS		
	mm	inches
A	25,51	1,004
B	38,93	1,53
C	30,12	1,18
D	17,25	0,68
E	10,89	0,43
G	11,62	0,46
H	8,54	0,34
L	1,55	0,6
M	19,47	0,77
N	1	0,04
P	4,06	0,16



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector