

## PNP 2N6050 – 2N6051 – 2N6052

### COMPLEMENTARY SILICON DARLINGTON POWER TRANSISTORS

The 2N6050, 2N6051 and 2N6052 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 NPN types are 2N6057, 2N6058 and 2N6059 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	$V_{BE}= 1.5 V$	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	°C	
$T_s$	Storage Temperature		-65 to +200		

#### THERMAL CHARACTERISTICS

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

## PNP 2N6050 – 2N6051 – 2N6052

### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

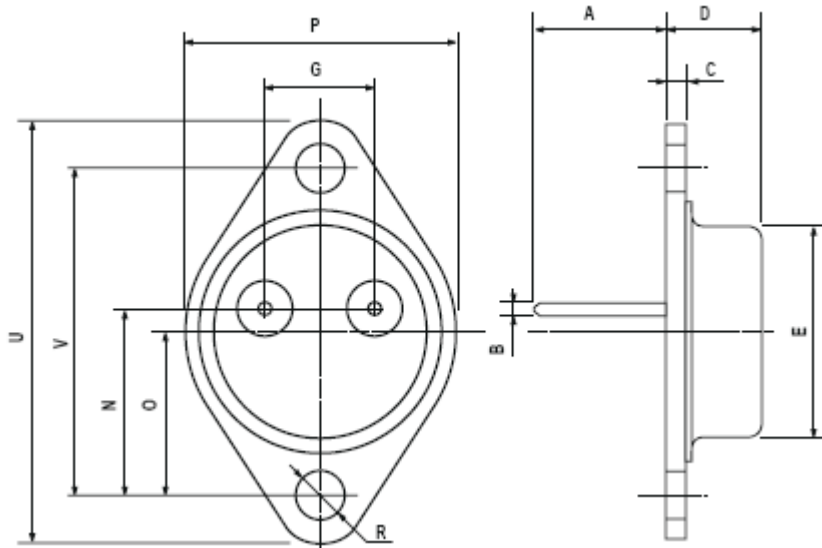
Symbol	Ratings	Test Condition(s)	Min	Typ	Max	Unit	
$I_{CEX}$	Collector Cutoff Current	$V_{CE} = V_{CEX} = -60\text{ V}$ , $V_{BE} = 1.5\text{ V}$	2N6050	-	-	-500	$\mu\text{A}$
		$V_{CE} = V_{CEX} = -80\text{ V}$ , $V_{BE} = 1.5\text{ V}$	2N6051	-	-		
		$V_{CE} = V_{CEX} = -100\text{ V}$ $V_{BE} = 1.5\text{ V}$	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	
			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  $\approx 300\ \mu\text{s}$ , Duty Cycle  $\angle 2.0\%$

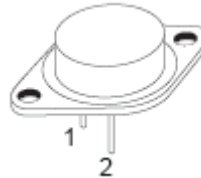
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### MECHANICAL DATA CASE TO-3

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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