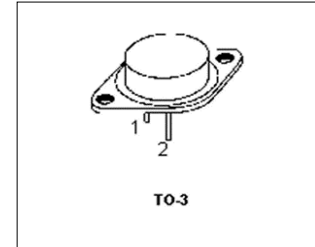


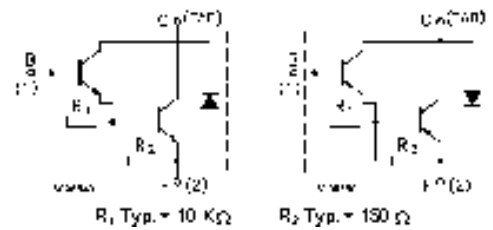
**2N6050/51/52  
2N6057/58/59**

## 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.

### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value	Unit	
$V_{CBO}$	Collector-Base Voltage	$I_E=0$	2N6050 2N6057	60	V
			2N6051 2N6058	80	
			2N6052 2N6059	100	
$V_{CEO}$	Collector-Emitter Voltage	$I_B=0$	2N6050 2N6057	60	V
			2N6051 2N6058	80	
			2N6052 2N6059	100	
$V_{CEX}$	Collector-Emitter Voltage	$V_{BE}=-1.5$ V	2N6050 2N6057	60	V
			2N6051 2N6058	80	
			2N6052 2N6059	100	

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

$V_{EBO}$	<i>Emitter-Base Voltage</i>	$I_C=0$	2N6050 2N6057 2N6051 2N6058 2N6052 2N6059	5.0	V
$I_C$	<i>Collector Current</i>		2N6050 2N6057 2N6051 2N6058 2N6052 2N6059	12	A
$I_{CM}$	<i>Collector Peak Current</i>		2N6050 2N6057 2N6051 2N6058 2N6052 2N6059	20	A
$I_B$	<i>Base Current</i>		2N6050 2N6057 2N6051 2N6058 2N6052 2N6059	0.2	mA
$P_T$	<i>Power Dissipation</i>	@ $T_C < 25^\circ$	2N6050 2N6057 2N6051 2N6058 2N6052 2N6059	150	Watts
$T_J T_s$	<i>Junction Storage Temperature</i>		2N6050 2N6057 2N6051 2N6058 2N6052 2N6059	200 -65 to +200	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

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

**2N6050/51/52**

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

**ELECTRICAL CHARACTERISTICS**

TC=25°C unless otherwise noted

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

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

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

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

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