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## 2N6107 Silicon PNP Transistor Audio Power Output and Medium Power Switching TO-220 Type Package

**Description:**

The 2N6107 is a silicon PNP transistor in a TO-220 type package designed for use in general purpose amplifier and switching applications.

**Features:**

- DC Current Gain Specified to 7 Amps:  $h_{FE} = 2.3 \text{ Min @ } I_C = 7A$
- Collector-Emitter Sustaining Voltage:  $V_{CEO(sus)} = 70V \text{ Min}$
- High Current-Gain Bandwidth Product:  $f_T = 10MHz \text{ Min @ } I_C = 500mA$

**Absolute Maximum Ratings:**

Collector-Emitter Voltage, $V_{CEO}$ .....	70V
Collector-Base Voltage, $V_{CB}$ .....	80V
Emitter-Base Voltage, $V_{EB}$ .....	5V
Collector Current, $I_C$	
Continuous .....	7A
Peak .....	10A
Base Current, $I_B$ .....	3A
Total Power Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	40W
Derate Above $25^\circ C$ .....	0.32W/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+150^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+150^\circ C$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	3.125 $^\circ C/W$

**Electrical Characteristics:** ( $T_C = +25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100mA, I_B = 0, \text{ Note 1}$	70	-	-	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 60V, I_B = 0$	-	-	1.0	mA
		$V_{CE} = 80V, V_{EB(off)} = 1.5V$	-	-	100	$\mu A$
	$V_{CE} = 80V, V_{EB(off)} = 1.5V, T_C = +150^\circ C$	-	-	2.0	mA	
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 5V, I_C = 0$	-	-	1.0	mA

Note 1. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

**Electrical Characteristics (Cont'd):** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>ON Characteristics</b> (Note 1)						
DC Current Gain	$h_{FE}$	$I_C = 2A, V_{CE} = 4V$	30	-	150	
		$I_C = 7A, V_{CE} = 4V$	2.3	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 7A, I_B = 3A$	-	-	3.5	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 7A, V_{CE} = 4V$	-	-	3.0	V
<b>Dynamic Characteristics</b>						
Current-Gain Bandwidth Product	$f_T$	$I_C = 500mA, V_{CE} = 4V, f_{test} = 1MHz,$ Note 2	10	-	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	-	-	250	pF
Small-Signal Current Gain	$h_{fe}$	$I_C = 500mA, V_{CE} = 4V, f = 50kHz$	20	-	-	

Note 1. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

Note 2.  $f_T = |h_{fe}| \cdot f_{test}$

