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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° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-65° 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
OFF Characteristics						
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	μA
	$V_{CE} = 80V, V_{EB(off)} = 1.5V, T_C = +150^\circ C$	-	-	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
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$I_C = 2\text{A}, V_{CE} = 4\text{V}$	30	-	150	
		$I_C = 7\text{A}, V_{CE} = 4\text{V}$	2.3	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 7\text{A}, I_B = 3\text{A}$	-	-	3.5	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 7\text{A}, V_{CE} = 4\text{V}$	-	-	3.0	V
Dynamic Characteristics						
Current-Gain Bandwidth Product	f_T	$I_C = 500\text{mA}, V_{CE} = 4\text{V}, f_{test} = 1\text{MHz}$, Note 2	10	-	-	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	250	pF
Small-Signal Current Gain	h_{fe}	$I_C = 500\text{mA}, V_{CE} = 4\text{V}, f = 50\text{kHz}$	20	-	-	

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

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

