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2N3714

Silicon NPN Transistor Audio Power Amp, Switch TO-3 Type Package

Description:

The 2N3714 is a silicon NPN transistor in a TO-3 type package designed for medium speed switching and amplifier applications.

Features:

- Gain Ranged Specified at 1A and 3A
- Low Collector-Emmitter Saturation Voltage: $V_{CE9sat} = 0.5V$ (Typ) @ $I_C = 5A, I_B = 500mA$
- Excellent Safe Operating Areas

Absolute Maximum Ratings:

Collector-Base Voltage, V_{CBO}	100V
Collector-Emmitter Voltage, V_{CEO}	80V
Emmitter-Base Voltage, V_{EBO}	7V
Continuous Collector Current, I_C	10A
Continuous Base Current, I_B	4A
Total Power Dissipation ($T_C = +25^\circ C$), P_D	150W
Derate Above $25^\circ C$	857mW/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ C$
Thermal Resistance, Junction-to-Case, R_{thJC}	1.17 $^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emmitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 200mA, I_B = 0, \text{Not } 1$	80	-	-	V
Collector-Emmitter Cutoff Current	I_{CEX}	$V_{CE} = 100V, V_{BE(off)} = 1.5V$	-	-	1.0	mA
		$V_{CE} = 100V, V_{BE(off)} = 1.5V, T_C = +125^\circ C$	-	-	10	mA
Emmitter Cutoff Current	I_{EBO}	$V_{BE} = 7V, I_C = 0$	-	-	5.0	mA

Note 1. Pulse test: Pulse Width = 300 μs , 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}	$V_{CE} = 2\text{V}, I_C = 1\text{A}$	25	-	90	
		$V_{CE} = 2\text{V}, I_C = 3\text{A}$	15	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 500\text{mA}$	-	-	1.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 5\text{A}, I_B = 500\text{mA}$	-	-	2.0	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 3\text{A}, V_{CE} = 2\text{V}$	-	-	1.5	V
Dynamic Characteristics						
Current-Gain Bandwidth Product	f_T	$V_{CE} = 10\text{V}, I_C = 500\text{mA}, f = 1\text{MHz}$, Note 2	4.0	-	-	MHz

Note 1. Pulse test: Pulse Width = 300 μs , Duty Cycle \leq 2%.

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

