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BD911 (NPN) & BD912 (PNP) Silicon Complementary Transistors Audio Power Amp, Switch TO-220 Type Package

Description:

The BD911 (NPN) and BD912 (PNP) are silicon complementary power transistors in a TO-220 plastic package intended for use in power amplifier and switching applications.

Absolute Maximum Ratings:

Collector-Emitter Voltage, V_{CEO}	100V
Collector-Base Voltage, V_{CBO}	100V
Emitter-Base Voltage, V_{EBO}	5V
Collector Current, I_C	
Continuous	15A
Peak	20A
Base Current, I_B	5A
Total Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	90W
Derate Above $+25^\circ\text{C}$	0.72W/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+150^\circ\text{C}$
Thermal Resistance Junction-to-Case, R_{thJC}	1.38 $^\circ\text{C}/\text{W}$ Max

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector-Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_B = 0, I_C = 50\text{mA}$, Note 1	100	-	-	V
Collector Cutoff Current	I_{CEO}	$I_B = 0, V_{CE} = 50\text{V}$	-	-	1	mA
	I_{CBO}	$I_E = 0, V_{CB} = 100\text{V}$	-	-	0.5	mA
Emitter Cutoff Current	I_{EBO}	$I_C = 0, V_{EB} = 5\text{V}$	-	-	1	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}	$I_C = 0.5\text{A}, V_{CE} = 4\text{V}$	40	-	250	
		$I_C = 5\text{A}, V_{CE} = 4\text{V}$	15	-	150	
		$I_C = 10\text{A}, V_{CE} = 4\text{V}$	5	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 0.5\text{A}$	-	-	1	V
		$I_C = 10\text{A}, I_B = 2.5\text{A}$	-	-	3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{A}, I_B = 2.5\text{A}$	-	-	2.5	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 5\text{A}, V_{CE} = 4\text{V}$	-	-	1.5	V
Dynamic Characteristics						
Current Gain-Bandwidth Product	f_T	$I_C = 500\text{mA}, V_{CE} = 4\text{V}, f = 1\text{MHz},$ Note 2	3	-	-	MHz

Note 1. Pulse Test; Pulse width = $300\mu\text{s}$, Duty Cycle $\leq 2\%$.

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

