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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, $T_J$ .....	$-65^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ 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
<b>OFF Characteristics</b>						
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 $\mu\text{s}$ , 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 (Note 1)</b>						
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
<b>Dynamic Characteristics</b>						
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.  $f_T = |h_{fe}| \cdot f_{test}$ .

