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## 2N5882

### Silicon NPN Power Transistor High Power Audio Amplifier TO-3 Type Package

**Description:**

The 2N5882 is a silicon NPN transistor in a TO-3 type package designed for use in general purpose power amplifier and switching applications.

**Features:**

- Low Collector-Emitter Saturation Voltage:  $V_{CE(sat)} = 1V$  (Max) at  $I_C = 7A$
- Excellent DC Current Gain:  $h_{FE} = 20 - 100 @ I_C = 6A$

**Absolute Maximum Ratings:**

Collector-Emitter Voltage, $V_{CEO}$ .....	80V
Collector-Base Voltage, $V_{CBO}$ .....	80V
Emitter-Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$	
Continuous .....	15A
Peak .....	30A
Base Current, $I_B$ .....	5A
Total Device Dissipation ( $T_C = +25^\circ C$ ), $P_D$ .....	160W
Derate Above $25^\circ C$ .....	.915W/ $^\circ C$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+200^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ C$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	1.1 $^\circ C/W$

**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	$V_{CEO(sus)}$	$I_C = 200mA, I_B = 0$ , Note 1	80	-	-	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 40V, I_B = 0$	-	-	1.0	mA
	$I_{CBO}$	$V_{CB} = 80V, I_E = 0$	-	-	0.5	mA
	$I_{CBX}$	$V_{CE} = 80V, V_{BE(off)} = 1.5V$		-	-	0.5
$V_{CE} = 80V, V_{BE(off)} = 1.5V, T_C = +150^\circ C$		-	-	5	mA	
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$	-	-	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	$h_{FE}$	$I_C = 2\text{A}, V_{CE} = 4\text{V}$	35	-	-	
		$I_C = 6\text{A}, V_{CE} = 4\text{V}$	20	-	100	
		$I_C = 15\text{A}, V_{CE} = 4\text{V}$	4.0	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 7\text{A}, I_B = 0.7\text{A}$	-	-	1.0	V
		$I_C = 15\text{A}, I_B = 3.75\text{A}$	-	-	4.0	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 6\text{A}, V_{CE} = 4\text{V}$	-	-	1.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 15\text{A}, I_B = 3.75\text{A}$	-	-	2.5	V
<b>Dynamic Characteristics</b>						
Current Gain-Bandwidth Product	$f_T$	$I_C = 1\text{A}, V_{CE} = 10\text{V}, f = 1\text{MHz}, \text{Note 2}$	4.0	-	-	MHz
Small-Signal Current Gain	$h_{fe}$	$I_C = 2\text{A}, V_{CE} = 4\text{V}, f = 1\text{kHz}$	20	-	-	

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

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

