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## 2N4912 Silicon NPN Transistor High Voltage, Medium Power Switch TO-66 Type Package

**Description:**

The 2N4912 silicon NPN transistor in a TO-66 type package designed for driver circuits and switching and amplifier applications.

**Features:**

- Low Collector-Emmitter Saturation Voltage:  $V_{CE(sat)} = 600\text{mV (Max) @ } I_C = 1\text{A}$
- Excellent safe Operating Area
- Gain Specified to  $I_C = 1\text{A}$

**Absolute Maximum Ratings:**

Collector-Emmitter Voltage, $V_{CEO}$ .....	80V
Collector-Base Voltage, $V_{CBO}$ .....	80V
Emitter-Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$	
Continuous .....	1A
Peak .....	4A
Base Current, $I_B$ .....	1A
Total Power Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	25W
Derate above $25^\circ\text{C}$ .....	0.143W/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+200^\circ\text{C}$
Storage Junction Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	$7^\circ\text{C/W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emmitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 100\text{mA}, I_B = 0$ , Note 1	80	-	-	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 40\text{V}, I_B = 0$	-	-	0.5	mA
		$V_{CE} = 80\text{V}, V_{BE(off)} = 1.5\text{V}$	-	-	0.1	mA
	$V_{CE} = 80\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = +100^\circ\text{C}$	-	-	1.0	mA	
	$I_{CBO}$	$V_{CB} = 80\text{V}, I_E = 0$	-	-	0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$	-	-	1.0	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</b> (Note 1)						
DC Current Gain	$h_{FE}$	$I_C = 50\text{mA}, V_{CE} = 1\text{V}$	40	-	-	
		$I_C = 500\text{mA}, V_{CE} = 1\text{V}$	20	-	100	
		$I_C = 1\text{A}, V_{CE} = 1\text{V}$	10	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$	-	-	0.6	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$	-	-	1.3	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$	-	-	1.3	V
<b>Dynamic Characteristics</b>						
Current Gain -Bandwidth Product	$f_T$	$I_C = 250\text{mA}, V_{CE} = 10\text{V}, f = 1\text{MHz}$ , Note 2	3	-	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	100	pF
Small-Signal Current Gain	$h_{fe}$	$I_C = 250\text{mA}, V_{CE} = 10\text{V}, f = 1\text{kHz}$	25	-	-	

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

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

