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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–Emitter Saturation Voltage: $V_{CE(sat)}$ = 600mV (Max) @ I_C = 1A
- Excellent safe Operating Area
- Gain Specified to I_C = 1A

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 1A
  Peak 4A
Base Current, I_B 1A
Total Power Dissipation (T_C = +25°C), P_D 25W
  Derate above 25°C . . . . . 0.143W/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +200°C
Storage Junction Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 7°C/W

Electrical Characteristics: (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 100mA, I_B = 0, Note 1	80	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 40V, I_B = 0	–	–	0.5	mA
	I_{CEX}	V_{CE} = 80V, $V_{BE(off)}$ = 1.5V	–	–	0.1	mA
		V_{CE} = 80V, $V_{BE(off)}$ = 1.5V, T_C = +100°C	–	–	1.0	mA
	I_{CBO}	V_{CB} = 80V, I_E = 0	–	–	0.1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0	–	–	1.0	mA

Note 1. Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2%.

Electrical Characteristics (Cont'd): (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	I_C = 50mA, V_{CE} = 1V	40	–	–	
		I_C = 500mA, V_{CE} = 1V	20	–	100	
		I_C = 1A, V_{CE} = 1V	10	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1A, I_B = 100mA	–	–	0.6	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 1A, I_B = 100mA	–	–	1.3	V
Base–Emitter ON Voltage	$V_{BE(on)}$	I_C = 1A, I_B = 100mA	–	–	1.3	V
Dynamic Characteristics						
Current Gain –Bandwidth Product	f_T	I_C = 250mA, V_{CE} = 10V, f = 1MHz, Note 2	3	–	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	–	–	100	pF
Small–Signal Current Gain	h_{fe}	I_C = 250mA, V_{CE} = 10V, f = 1kHz	25	–	–	

Note 1. Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2%.

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