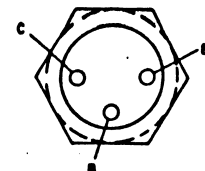


2N5102

SILICON N-P-N TRANSISTOR

TERMINAL DESIGNATIONS



Maximum Ratings, Absolute-Maximum Values:

COLLECTOR-TO-EMITTER

VOLTAGE:

With $V_{BE} = -1.5$ volts V_{CEV} 100 V

With external base-to-emitter

resistance $R_{BE} = 5 \Omega$ V_{CER} 50 V

EMITTER-TO-BASE VOLTAGE V_{EBO} 4 V

COLLECTOR CURRENT:

Peak 10 A

Continuous I_C 3.3 A

TRANSISTOR DISSIPATION P_T

At case temperatures up to 25°C 70 W

TEMPERATURE RANGE:

Storage & Operating (Junction) -65 to 200°C

LEAD TEMPERATURE (During soldering):

At distances $\geq 1/32$ in. from
insulating wafer for 10 s max 230°C

JEDEC TO-40

ELECTRICAL CHARACTERISTICS, At Case Temperature (T_C) = 25°C unless otherwise specified

CHARACTERISTIC	SYMBOL	TEST CONDITIONS						LIMITS		UNITS
		VOLTAGE V dc			CURRENT mA dc					
		V _{CB}	V _{CE}	V _{BE}	I _E	I _B	I _C	MIN.	MAX.	
Collector Cutoff Current: With base-emitter junction reverse biased	I _{CEV}		83	-1.5				-	20	mA
At T _C = 150°C			30	-1.5				-	10	
With external base-to-emitter resistance (R _{BE}) = 5 Ω	I _{CER}		50					-	10	
Emitter Cutoff Current	I _{EBO}			-4				-	10	mA
Collector-to-Emitter Sustaining Voltage: With base-emitter junction reverse biased	V _{CEV(sus)}			-1.5			600 ^a	100	-	V
With external base-to-emitter resistance (R _{BE}) = 5 Ω	V _{CER(sus)}						200 ^a	50	-	
With base open	V _{CEO(sus)}				0		200 ^a	35	-	
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}				10		0	4	-	V
DC Forward Current Transfer Ratio	h _{FE}		4				3 A 0.5 A	10 10	- 100	
Magnitude of Common-Emitter, Small-Signal, Short-Circuit Forward Current Transfer Ratio (f = 150 MHz)	h _{fe}		24				500	1	-	
Output Capacitance (f = 1 MHz)	C _{ob}	30			0			-	85	pF
Available Amplifier Signal Input Power ^b (P _O = 15 W, Z _G = 50 Ω, f = 136 MHz)	P _i							-	6	W
Collector Circuit Efficiency (P _{IE} = 6 W, Z _G = 50 Ω, f = 136 MHz)	η _C							70	-	%
Modulation (f = 118 MHz)	M		24 (V _{CC})					80	-	%
Load Mismatch (f = 118 MHz)	LM		24 (V _{CC})				1100	Will not be damaged		
Dynamic Input Impedance (P _{IE} = 6 W, f = 150 MHz)	Z _{IN}		24 (V _{CC})					1.7 + j 2.6 (typ)		Ω
Thermal Resistance (Junction to Case)	R _{θJC}							-	2.5	°C/W

^aIn accordance with JEDEC registration data.

^bPulsed through a 9-mH inductor; duty factor = 50%.

^cUnmodulated carrier.

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