

2N3107 THROUGH 2N3110

NPN SILICON AF MEDIUM POWER AMPLIFIERS & SWITCHES

THE 2N3107 THROUGH 2N3110 ARE NPN SILICON PLANAR EPITAXIAL TRANSISTORS FOR AF MEDIUM POWER DRIVERS AND OUTPUTS, AS WELL AS FOR SWITCHING APPLICATIONS UP TO 1 AMPERE. THEY ARE COMPLEMENTARY TO THE PNP 2N4032, 2N4030.

CASE TO-39



C E B

ABSOLUTE MAXIMUM RATINGS

		2N3107 2N3108	2N3109 2N3110
Collector-Base Voltage	V _{CBO}	100V	80V
Collector-Emitter Voltage	V _{CEO}	60V	40V
Emitter-Base Voltage	V _{EBO}	7V	7V
Collector Current	I _C		1A
Total Power Dissipation (T _C ≤ 25°C)	P _{tot}		5W
(T _A ≤ 25°C)			800mW
Operating Junction & Storage Temperature	T _j , T _{stg}		-65 to 200°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage 2N3107, 2N3108 2N3109, 2N3110	BV _{CBO}	100 80		V V	I _C =0.1mA I _E =0
Collector-Emitter Breakdown Voltage 2N3107, 2N3108 2N3109, 2N3110	LV _{CEO} *	60 40		V V	I _C =30mA I _B =0
Emitter-Base Breakdown Voltage	BV _{EBO}	7		V	I _E =0.1mA I _C =0
Collector Cutoff Current	I _{CES}		10	nA	V _{CE} =60V V _{BE} =0
Collector Cutoff Current (T _A =150°C)	I _{CBO}		10	μA	V _{CB} =60V I _E =0
Emitter Cutoff Current	I _{EBO}		10	nA	V _{EB} =5V I _C =0
Collector-Emitter Saturation Voltage	V _{CE(sat)} *		0.25 1.0	V V	I _C =150mA I _B =15mA I _C =1A I _B =0.1A
Base-Emitter Saturation Voltage	V _{BE(sat)} *		1.1 2.0	V V	I _C =150mA I _B =15mA I _C =1A I _B =0.1A
D.C. Current Gain 2N3107, 2N3109 only	h _{FE} *		35 100 300 40		I _C =0.1mA V _{CE} =10V I _C =150mA V _{CE} =1V I _C =500mA V _{CE} =10V

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PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
2N3107, 2N3109 only	HFE *	30			$I_C=150\text{mA}$ $V_{CE}=10\text{V}$ $T_A=-55^\circ\text{C}$
D.C. Current Gain	HFE *	20	120		$I_C=0.1\text{mA}$ $V_{CE}=10\text{V}$ $I_C=150\text{mA}$ $V_{CE}=1\text{V}$ $I_C=500\text{mA}$ $V_{CE}=10\text{V}$ $I_C=150\text{mA}$ $V_{CE}=10\text{V}$ $T_A=-55^\circ\text{C}$
2N3108, 2N3110 only		25			
		15			
Current Gain-Bandwidth Product	f_T	70		MHz	$I_C=50\text{mA}$ $V_{CE}=10\text{V}$
2N3107, 2N3109		60		MHz	
2N3108, 2N3110					
Collector-Base Capacitance	Cob		20	pF	$V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$
2N3107, 2N3108			25	pF	
2N3109, 2N3110					
Emitter-Base Capacitance	Cib		80	pF	$V_{EB}=0.5\text{V}$ $I_C=0$ $f=1\text{MHz}$
Noise Figure (f=1kHz)	NF		7	dB	$I_C=30\mu\text{A}$ $V_{CE}=10\text{V}$ $R_G=1\text{K}\Omega$
Turn-On Time	t_{on}		200	nS	$I_C=150\text{mA}$ $I_{B1}=7.5\text{mA}$
Turn-Off Time	t_{off}		1000	nS	$I_C=150\text{mA}$ $I_{B1}=-I_{B2}=7.5\text{mA}$
2N3107, 2N3109			600	nS	
2N3108, 2N3110					

* Pulse Test : Pulse Width=0.3mS, Duty Cycle=1%

