

ME 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

Collector-Base Voltage	VCBO	2N3107 2N3108	100V	2N3109 2N3110	80V
Collector-Emitter Voltage	VCEO		60V		40V
Emitter-Base Voltage	VEBO		7V		7V
Collector Current	IC				1A
Total Power Dissipation ($T_C \leq 25^\circ\text{C}$)	Ptot				5W
($T_A \leq 25^\circ\text{C}$)					800mW
Operating Junction & Storage Temperature	Tj, Tstg				-65 to 200°C

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage 2N3107, 2N3108 2N3109, 2N3110	BVCBO	100 80		V V	$I_C = 0.1\text{mA}$ $I_E = 0$
Collector-Emitter Breakdown Voltage 2N3107, 2N3108 2N3109, 2N3110	LVCEO *	60 40		V V	$I_C = 30\text{mA}$ $I_B = 0$
Emitter-Base Breakdown Voltage	BVEBO	7		V	$I_E = 0.1\text{mA}$ $I_C = 0$
Collector Cutoff Current	ICES		10	nA	$V_{CE} = 60\text{V}$ $V_{BE} = 0$
Collector Cutoff Current ($T_A = 150^\circ\text{C}$)	ICBO		10	μA	$V_{CB} = 60\text{V}$ $I_E = 0$
Emitter Cutoff Current	IEBO		10	nA	$V_{EB} = 5\text{V}$ $I_C = 0$
Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})^*$		0.25 1.0	V V	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$ $I_C = 1\text{A}$ $I_B = 0.1\text{A}$
Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})^*$		1.1 2.0	V V	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$ $I_C = 1\text{A}$ $I_B = 0.1\text{A}$
D.C. Current Gain 2N3107, 2N3109 only	h_{FE}^*		35 100 300 40		$I_C = 0.1\text{mA}$ $V_{CE} = 10\text{V}$ $I_C = 150\text{mA}$ $V_{CE} = 1\text{V}$ $I_C = 500\text{mA}$ $V_{CE} = 10\text{V}$

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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		$I_C=0.1\text{mA}$ $V_{CE}=10\text{V}$
2N3108, 2N3110 only		40			$I_C=150\text{mA}$ $V_{CE}=1\text{V}$
		25			$I_C=500\text{mA}$ $V_{CE}=10\text{V}$
		15			$I_C=150\text{mA}$ $V_{CE}=10\text{V}$ $T_A=-55^\circ\text{C}$
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%

