

2N2102 • 2N4036

COMPLEMENTARY SILICON AF MEDIUM POWER AMPLIFIERS & SWITCHES

CASE TO-39

THE 2N2102(NPN) AND 2N4036(PNP) ARE COMPLEMENTARY SILICON PLANAR EPITAXIAL TRANSISTORS FOR USE IN AF MEDIUM POWER DRIVERS AND OUTPUTS, AS WELL AS FOR SWITCHING APPLICATIONS.



ABSOLUTE MAXIMUM RATINGS

For p-n-p devices, voltage and current values are negative.

		2N2102(NPN)	2N4036(PNP)
Collector-Base Voltage	VCBO	120V	90V
Collector-Emitter Voltage	VCEO	65V	65V
Emitter-Base Voltage	VEBO	7V	7V
Collector Current	IC		1A
Total Power Dissipation (T _C ≤ 25°C)	P _{tot}		7W
(T _A ≤ 25°C)			1W
Operating Junction & Storage Temperature T _j , T _{stg}			-65 to 200°C

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

PARAMETER	SYMBOL	2N2102		2N4036		UNIT	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
Collector-Base Breakdown Voltage	BV _{CB0}	120		90		V	I _C =0.1mA I _E =0
Collector-Emitter Breakdown Voltage	LV _{CER} *	80				V	I _C =100mA R _{BE} =10Ω
Collector-Emitter Breakdown Voltage	LV _{CEV} *			85		V	I _C =100mA V _{EB} =1.5V
Collector-Emitter Breakdown Voltage	LV _{CEO} *	65		65		V	I _C =100mA I _B =0
Emitter-Base Breakdown Voltage	BV _{EB0}	7		7		V	I _E =0.1mA I _C =0
Collector Cutoff Current	I _{CB0}		2		100	nA	V _{CB} =60V I _E =0
					100	nA	V _{CB} =90V I _E =0
Collector Cutoff Current	I _{CEV}				100	μA	V _{CE} =30V V _{EB} =1.5V T _A =150°C
Emitter Cutoff Current	I _{EB0}		5		20	nA	V _{EB} =5V I _C =0
D.C. Current Gain	H _{FE} *	10					I _C =0.01mA V _{CE} =10V
		20		20			I _C =0.1mA V _{CE} =10V
		40	120	40	140		I _C =150mA V _{CE} =10V
		25		20			I _C =500mA V _{CE} =10V
		10					I _C =1A V _{CE} =10V
		35					I _C =10mA V _{CE} =10V
				20	200		I _C =150mA V _{CE} =2V

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PARAMETER	SYMBOL	2N2102		2N4036		UNIT	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$ *		0.5		0.65	V	$I_C=150\text{mA}$ $I_B=15\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$ *		1.1		1.4	V	$I_C=150\text{mA}$ $I_B=15\text{mA}$
Current Gain-Bandwidth Product	f_T	60		60		MHz	$I_C=50\text{mA}$ $V_{CE}=10\text{V}$
Collector-Base Capacitance	C_{ob}		10		30	pF	$V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$
Emitter-Base Capacitance	C_{ib}		80		90	pF	$V_{EB}=0.5\text{V}$ $I_C=0$ $f=1\text{MHz}$
Noise Figure	NF		6			dB	$I_C=0.3\text{mA}$ $V_{CE}=10\text{V}$ $f=1\text{kHz}$ $R_G=510\Omega$
Turn-On Time	t_{on}				110	nS	$I_C=150\text{mA}$ $I_{B1}=15\text{mA}$ $V_{CC}=30\text{V}$
Turn-Off Time	t_{off}				700	nS	$I_C=150\text{mA}$ $I_{B1}=I_{B2}=15\text{mA}$ $V_{CC}=30\text{V}$

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

