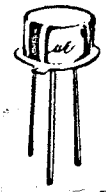
2N2102 · 2N4036

COMPLEMEMTARY SILICON AF MEDIUM POWER AMPLIFIERS & SWITCHES

MICROELECTRONICS

CASE TO-39



C E B

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	V_{CBO}	120V	90V
Collector-Emitter Voltage	V_{CEO}	65V	65V
Emitter-Base Voltage	V_{EBO}	7V	7V
Collector Current	I_C	1A	
Total Power Dissipation ($T_C \leqslant 25^oC$)	P_{tot}	7W	
($T_A \leqslant 25^oC$)		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 MIN	2N2102 MAX	2N4036 MIN	2N4036 MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	BV_{CBO}	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_{EBO}	7		7		V	I_E=0.1mA I_C=0
Collector Cutoff Current	I_{CBO}		2			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_{EBO}		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 MIN	2N2102 MAX	2N4036 MIN	2N4036 MAX	UNIT	TEST CONDITIONS
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$*		0.5		0.65	V	I_C=150mA I_B=15mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$*		1.1		1.4	V	I_C=150mA I_B=15mA
Current Gain-Bandwidth Product	f_T	60		60		MHz	I_C=50mA V_{CE}=10V
Collector-Base Capacitance	Cob		10		30	pF	V_{CB}=10V I_E=0 f=1MHz
Emitter-Base Capacitance	Cib		80		90	pF	V_{EB}=0.5V I_C=0 f=1MHz
Noise Figure	NF		6			dB	I_C=0.3mA V_{CE}=10V f=1kHz R_G=510Ω
Turn-On Time	ton				110	nS	I_C=150mA I_{B1}=15mA Vcc=30V
Turn-Off Time	toff				700	nS	I_C=150mA I_{B1}=-I_{B2}=15mA Vcc=30V

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