



10104

NPN Epitaxial Planar
Silicon Transistor

27MHz High Frequency Power Amp Applications

0.62C

Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$

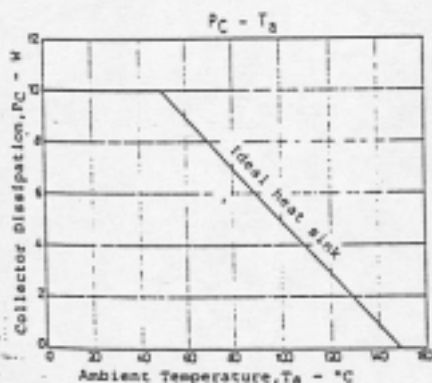
Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$			unit
Collector to Base Voltage	V_{CB0}	80	V
Collector to Emitter Voltage	V_{CER}	75	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current	I_C	3	A
Peak Collector Current	i_{cp}	5	A
Collector Dissipation	P_C	1.2	W
$T_c=50^{\circ}\text{C}$			
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics Characteristics at $T_a=25^{\circ}\text{C}$

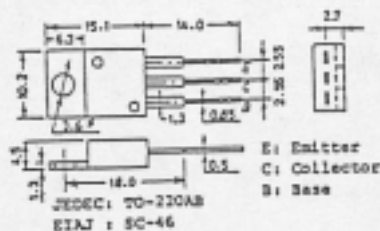
Electrical Characteristics		Characteristics at $T_a=25^{\circ}\text{C}$		min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=40\text{V}, I_E=0$				10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$				10	μA
DC Current Gain	h_{FE}	$V_{CE}=5\text{V}, I_C=0.5\text{A}$	25*			200*	
Gain Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=0.1\text{A}$	100	150			MHz
Output Capacitance	c_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		45	60		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=0.1\text{A}$		0.15	0.6		V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=0.1\text{A}$		0.9	1.2		V
C-B Saturation Voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_B=0$	80				V
C-E Saturation Voltage	$V_{(BR)CER}$	$I_C=1\text{mA}, R_{BE}=150\Omega$	75				V
E-B Saturation Voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5				V
[At specified test circuit]							
Output Power	P_o	$V_{CC}=12\text{V}, f=27\text{MHz}, P_i=0.2\text{W}$	4.0				W
Power Efficiency	η		60				%

* The 2SC2078 is classified by 0.5A h_{FE} as follows:

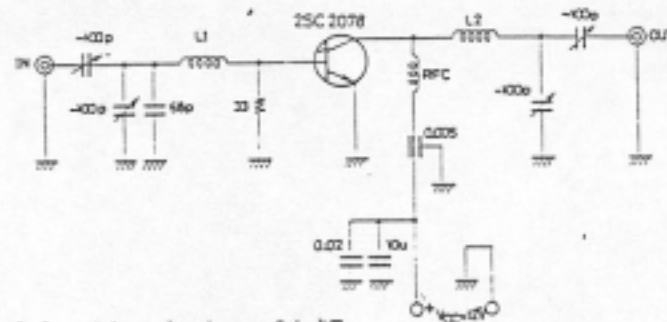
25	B	50	40	C	80	60	D	120	100	E	200
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Case Outline 2010A
(unit:mm)



2SC2078 27MHz Output Power Test Circuit



Coil data L1: 0.3mm tinned wire, 9ø 4T
 L2: 0.6mm tinned wire, 9ø 4T
 RFC 2.2uH

