



QNHCHIP

2SC2078

Product Specification

2SC2078

Silicon NPN Power Transistor



Description

2SC2078 is a Silicon NPN Power Transistor, Designed primarily for SSB linear power amplifier applications.

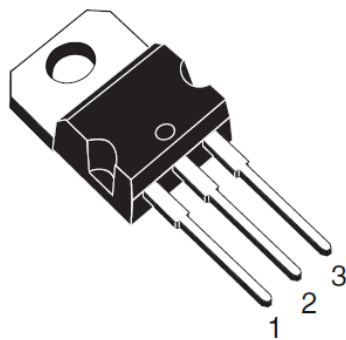
FEATURES

- Collector Emitter Voltage : $V_{CE} = 75V(\text{Min})$; $R_{BE} = 150\Omega$
- Collector Current : $I_C = 3A$

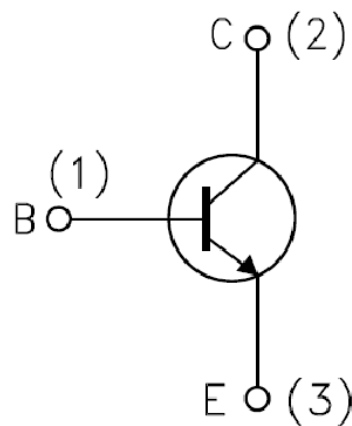
APPLICATIONS

- 27MHz RF Power Amplifier Applications

Pin Assignments



TO-220



PIN NO.	NAME
1	BASE
2	COLLECTOR
3	EMITTER



ABSOLUTE MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	80	V
V_{CER}	Collector-Emitter Voltage $R_{BE}=150\Omega$	75	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	3	A
I_{CM}	Collector Current-Peak	5	A
P_C	Collector Power Dissipation @ $T_A=25^{\circ}\text{C}$	1.2	W
	Collector Power Dissipation @ $T_C=50^{\circ}\text{C}$	10	
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^{\circ}\text{C}$



ELECTRICAL CHARACTERISTICS

$T_C=25\text{ }^{\circ}\text{C}$ unless otherwise specified

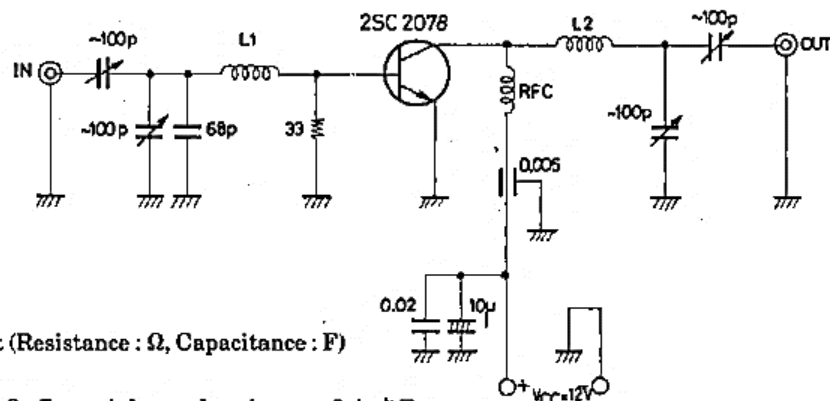
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=0.1\text{mA}; I_B=0$	80			V
$V_{(BR)CER}$	Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}; R_{BE}=150\Omega$	75			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=100\mu\text{A}; I_C=0$	5			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=0.1\text{A}$		0.15	0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=0.1\text{A}$		0.9	1.2	V
I_{CBO}	Collector Cutoff Current	$V_{CB}=40\text{V}; I_E=0$			10	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=4\text{V}; I_C=0$			10	μA
h_{FE}	DC Current Gain	$I_C=500\text{mA}; V_{CE}=5\text{V}$	25		200	
C_{OB}	Output Capacitance	$I_E=0; V_{CB}=10\text{V};$ $f_{test}=1\text{MHz}$		45	60	pF
f_T	Current-Gain—Bandwidth Product	$I_C=500\text{mA}; V_{CE}=10\text{V}$	100	150		MHz
P_O	Output Power	$V_{CC}=12\text{V}; P_{in}=0.2\text{W},$ $f=27\text{MHz}$	4.0			W
η	Power Efficiency		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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Output Power Test Circuit

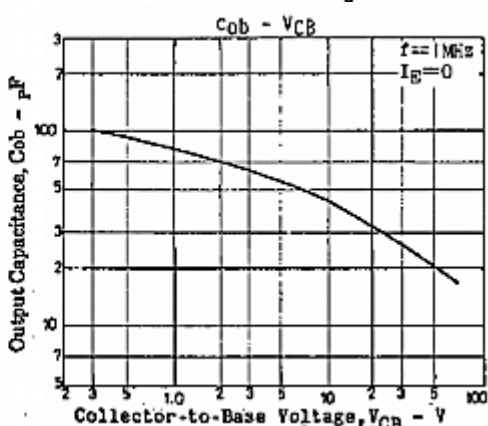
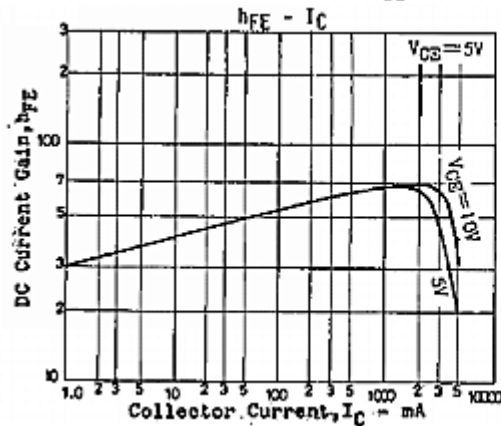
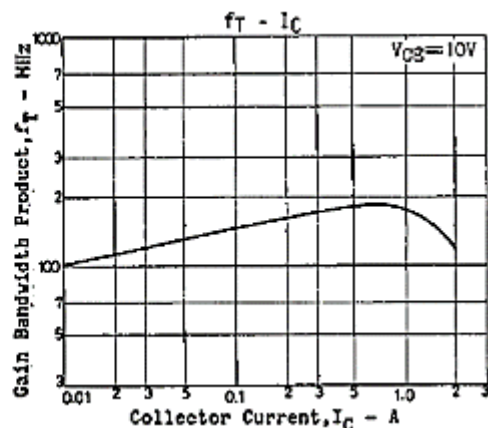
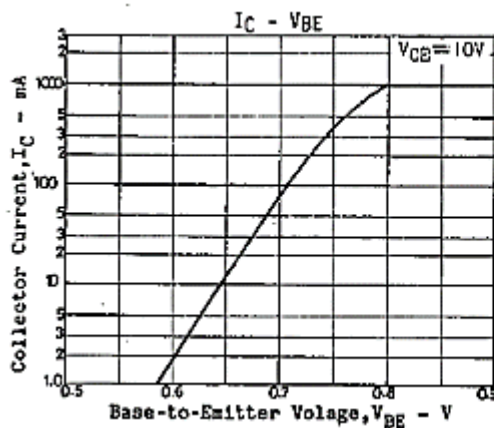
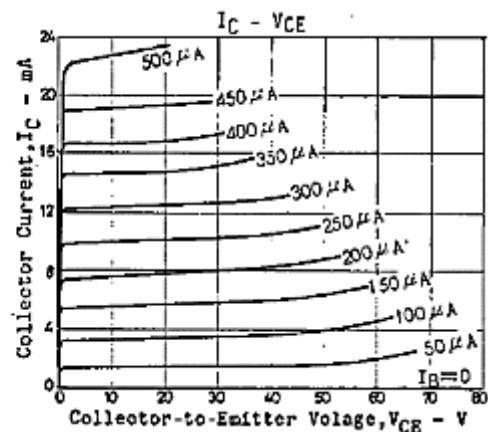
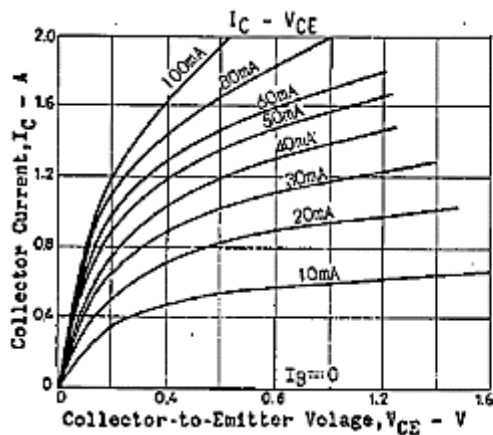


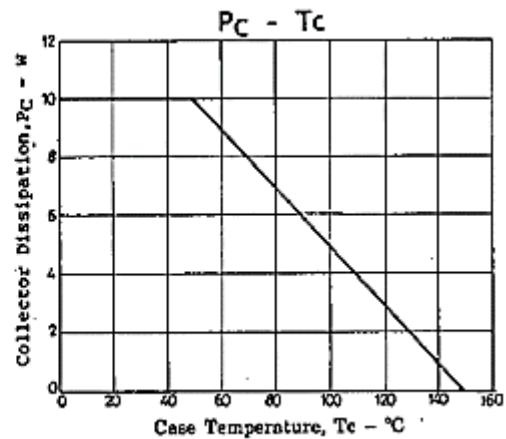
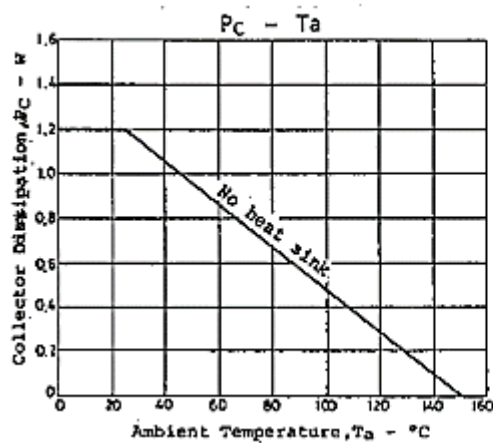
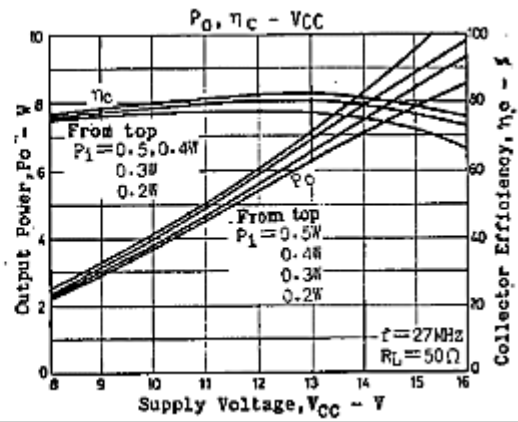
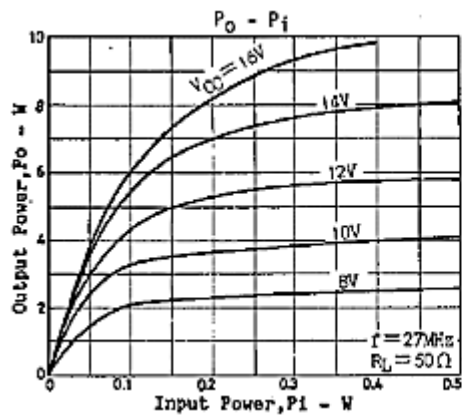
Unit (Resistance : Ω , Capacitance : F)

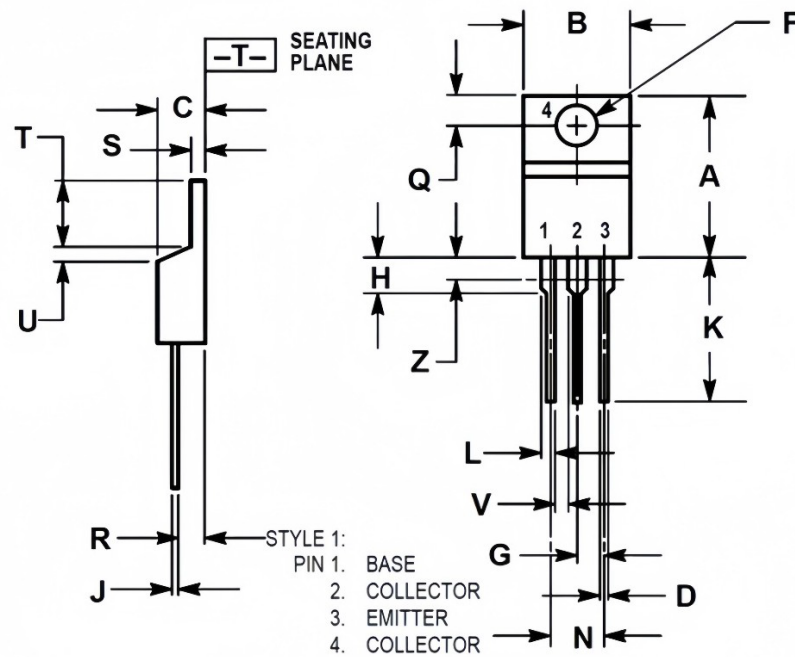
Coil data L1: 0.3mm tinned wire, 9ø 4T

L2: 0.6mm tinned wire, 9ø 4T

RFC 2.2uH





**PACKAGE**

UNIT	mm		inches	
A	15.75	14.48	0.620	0.570
B	10.28	9.66	0.405	0.380
C	4.82	4.07	0.19	0.16
D	0.88	0.64	0.035	0.025
F	3.73	3.61	0.147	0.142
G	2.66	2.42	0.105	0.095
H	3.93	2.8	0.155	0.110
J	0.64	0.46	0.025	0.018
K	14.27	12.70	0.562	0.500
L	1.52	1.15	0.060	0.045
N	5.33	4.83	0.210	0.190
Q	3.04	2.54	0.12	0.10
R	2.79	2.04	0.11	0.08
S	1.39	1.15	0.055	0.045
T	6.47	5.97	0.255	0.235
U	1.27	0.00	0.05	0.00
V		1.15		0.045
Z	2.04		0.045	

Ordering information

Order Code	Marking	Package	Packaging
2SC2078	C2078	TO-220	Tube