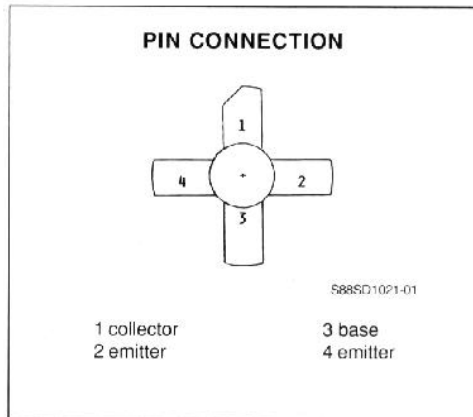
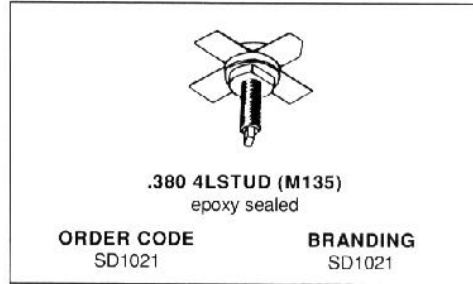


**RF & MICROWAVE TRANSISTORS**  
**130...230MHz FM MOBILE APPLICATIONS**

- FM CLASS C TRANSISTOR
- FREQUENCY 230MHz
- VOLTAGE 12.5V
- POWER OUT 5.5W
- POWER GAIN 6.2dB
- EFFICIENCY 60%
- COMMON EMITTER



**DESCRIPTION**

The SD1021 is a 12.5V NPN epitaxial, common emitter planar transistor designed for VHF communications applications. The device is rugged and exhibits high gain at optimum efficiency.

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case} = 25^{\circ}C$ )

Symbol	Parameter	Value	Unit
$V_{CEO}$	Collector - Emitter Voltage	18.0	V
$V_{CES}$	Collector - Emitter Voltage	36.0	V
$V_{EBO}$	Emitter - Base Voltage	4.0	V
$I_C$	Collector Current	1.0	A
$P_{tot}$	Total Power Dissipation	9.7	W
$T_{stg}$	Storage Temperature	- 65 to + 150	$^{\circ}C$
$T_j$	Junction Temperature	+ 200	$^{\circ}C$

**THERMAL DATA**

$R_{th(j-c)}$	Junction-case Thermal Resistance	18.0	$^{\circ}C/W$
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**SD1021**

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$ )

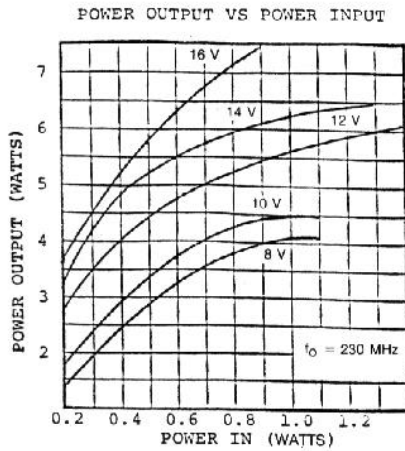
**STATIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$BV_{CES}$	$I_C = 50mA$	$V_{BE} = 0$	36.0			V
$BV_{CEO}$	$I_C = 50mA$	$I_B = 0$	18.0			V
$BV_{EBO}$	$I_E = 10mA$	$I_C = 0$	4.0			V
$I_{CBO}$	$V_{CB} = 15V$	$I_E = 0$			1.0	mA
$h_{FE}$	$V_{CE} = 5V$	$I_C = 250A$	5.0		200	

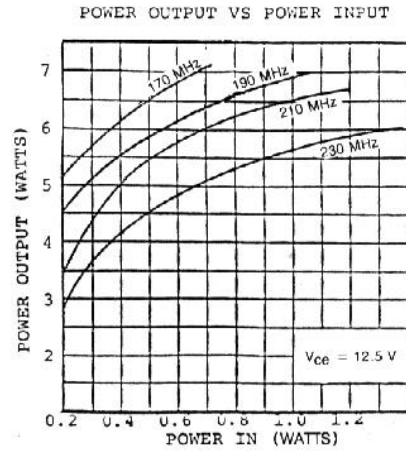
**DYNAMIC**

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
$P_O$	$f = 230MHz$	$V_{CE} = 12.5V$	5.5	6.0		W
$G_P$	$f = 230MHz$	$V_{CE} = 12.5V$	6.2	6.6		dB
$\eta_C$	$f = 230MHz$	$V_{CE} = 12.5V$	60.0	70.0		%
$C_{OB}$	$f = 1.0MHz$	$V_{CB} = 12.5V$		8.0	12.0	pF

**APPLICATION INFORMATION** (typical curves)



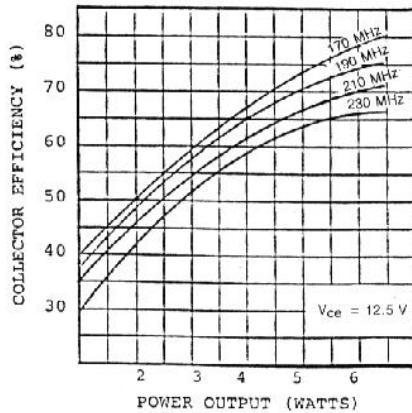
S88SD1021-02



S88S1021-03

### APPLICATION INFORMATION (typical curves) (continued)

EFFICIENCY VS POWER OUTPUT



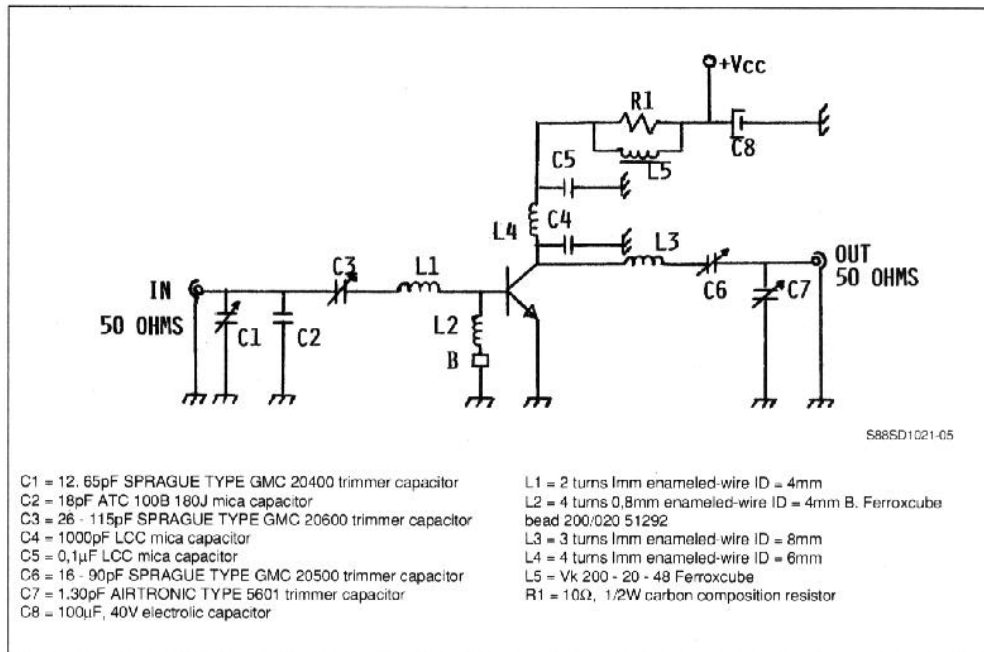
S88SD1021-04

### IMPEDANCE DATA

 $V_{CE} = -12.5V$  $P_{out} = 5.5W$ 

	170	200	230
$Z_{IN}$	$3 - j 1.0$	$3 + j 0$	$3 + j 1.0$
$Z_{OUT}$	$10 - j 7.0$	$13 - j 8.0$	$17 - j 9.5$

### TEST CIRCUIT (170-230MHz)

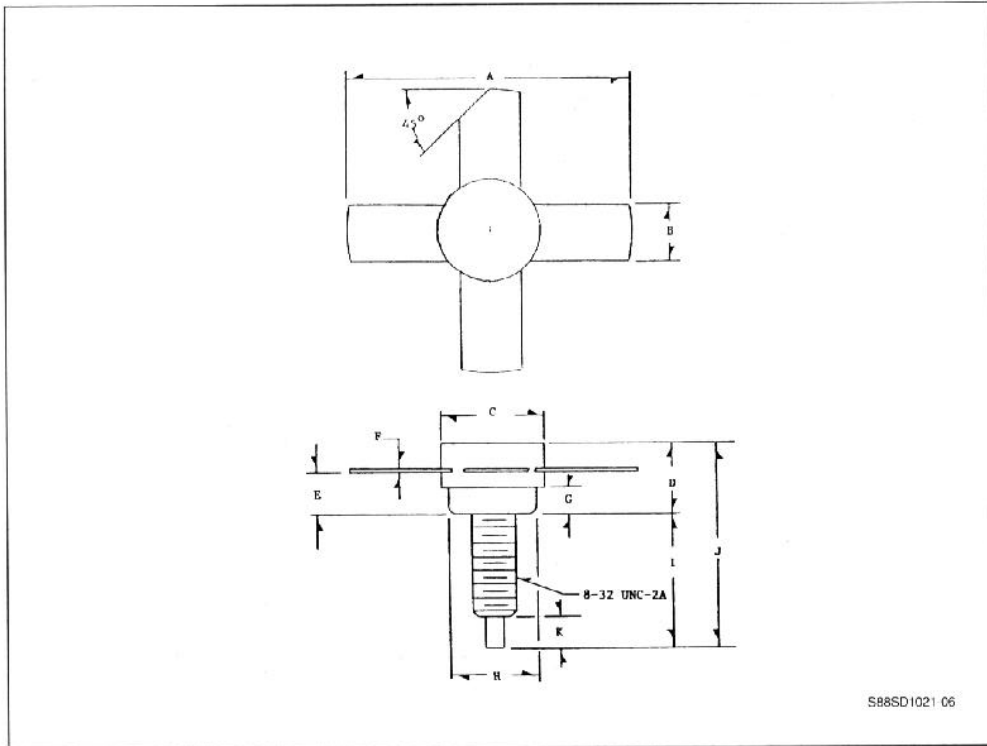


S88SD1021-05

**SD1021**

**PACKAGE MECHANICAL DATA**

.380 4LSTUD



	Minimum Inches	Maximum Inches
A	.980	
B	.220	.230
C	.370	.385
D		.275
E	.155	.175
F	.004	.007

	Minimum Inches	Maximum Inches
G	.090	.100
H	.320	.330
I	.450	.490
J		.750
K	.100	.130