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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

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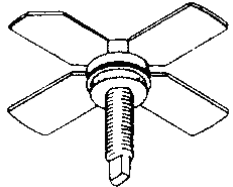
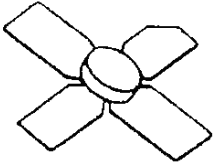
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





MS652/MS652S

5.0 Watts, 12.5 Volts, Class C
UHF Applications

GENERAL DESCRIPTION The MS652/MS652S is a common emitter and 12.5V Class C epitaxial silicon NPN planar transistor designed primarily for UHF communications. It withstands severe mismatch under normal operating conditions.		 .280 4L STUD(M122), Epoxy sealed MS652  .280 4LSL (M123), Epoxy sealed MS652S													
ABSOLUTE MAXIMUM RATINGS <table border="0"> <tr> <td>Maximum Power Dissipation @ 25°C</td> <td>25 Watts</td> </tr> <tr> <td>BV_{CBO} Collector to Base Voltage</td> <td>36 Volts</td> </tr> <tr> <td>BV_{CEO} Collector to Emitter Voltage</td> <td>16 Volts</td> </tr> <tr> <td>BV_{EBO} Emitter to Base Voltage</td> <td>4.0 Volts</td> </tr> <tr> <td>I_C Collector Current</td> <td>2.0 Amps</td> </tr> <tr> <td>Storage Temperature</td> <td>-65 to +150 °C</td> </tr> <tr> <td>Operating Junction Temperature</td> <td>+200 °C</td> </tr> </table>			Maximum Power Dissipation @ 25°C	25 Watts	BV _{CBO} Collector to Base Voltage	36 Volts	BV _{CEO} Collector to Emitter Voltage	16 Volts	BV _{EBO} Emitter to Base Voltage	4.0 Volts	I _C Collector Current	2.0 Amps	Storage Temperature	-65 to +150 °C	Operating Junction Temperature
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Operating Junction Temperature	+200 °C														

FUNCTIONAL CHARACTERISTICS @ 25°C

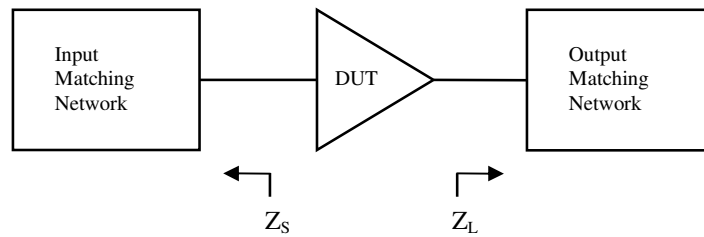
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P _{OUT}	Power Out	F = 512 MHz V _{CE} = 12.5V	5.0	-	-	W
P _{IN}	Power Input		-	-	0.5	W
G _p	Power Gain		10.0	-	-	dB
η	Efficiency	P _{OUT} = 5W	60	-	-	%

ELECTRICAL CHARACTERISTICS @ 25°C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
BV _{CES}	Collector to Emitter Breakdown	I _C = 25 mA, V _{BE} = 0	36	-	-	V
BV _{CEO}	Collector to Emitter Breakdown	I _C = 50 mA, I _B = 0	16	-	-	V
BV _{CBO}	Collector to Base Breakdown	I _C = 25 mA, I _E = 0	36	-	-	V
BV _{EBO}	Emitter to Base Breakdown	I _E = 5 mA, I _C = 0	4.0	-	-	V
I _{CES}	Collector to Emitter Leakage	V _{CE} = 15 V, V _{BE} = 0	-	-	1.0	mA
h _{FE}	DC – Current Gain	I _C = 200 mA, V _{CE} = 5 V	10	-	150	-
C _{OB}	Output Capacitance	F = 1MHz, V _{CB} = 15V	-	-	15	pF
θ _{jc} ¹	Junction-Case Thermal Resistance		-	-	7	°C/W

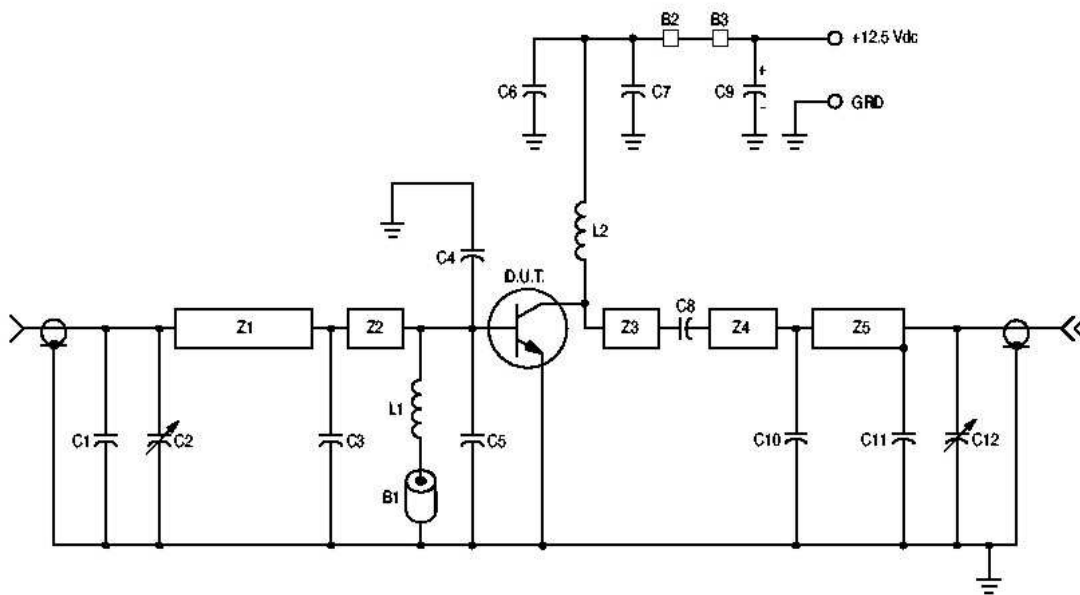
NOTES: 1. At rated output power with MSC fixture.
Rev. A: May, 2010

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Typical Impedance Values

Frequency (MHz)	Z_S (Ω)	Z_L (Ω)
400	$1.2 - j0.6$	$6.5 + j6.5$
440	$1.2 - j0.9$	$7.2 + j6.0$
470	$1.2 - j1.2$	$7.7 + j5.3$
512	$1.2 - j1.5$	$8.3 + j4.5$

* $V_{CC} = 12.5V$, $P_{OUT} = 5W$

440 - 512 MHz Broadband Test Circuit


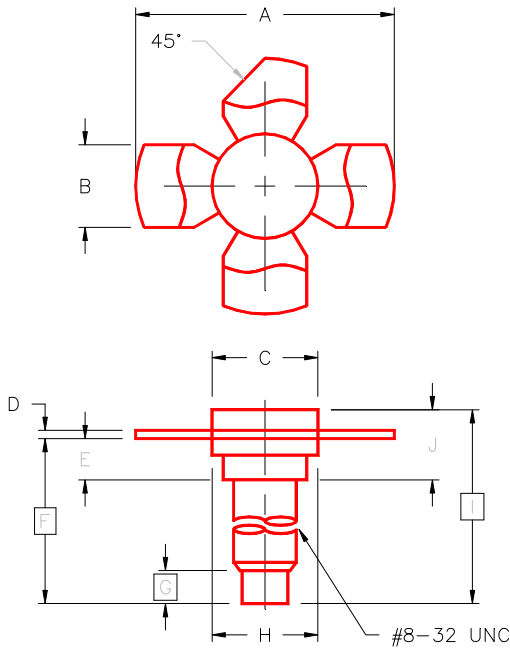
B1, B2, B3 — Ferrite Bead
 C1 — 7.0 pF Unelco Mica
 C2 — 1.0–6.0 pF Johanson Variable 5201
 C3 — 15 pF Unelco Mica
 C4 — 43 pF Mini–Underwood Mica
 C5 — 56 pF Mini–Underwood Mica
 C6 — 1000 pF Unelco Mica
 C7 — 0.1 μ F Ceramic

C8 — 68 pF Mini–Underwood Mica
 C9 — 1.0 μ F Electrolytic 25 V
 C10, C11 — 5.0 pF Unelco Mica
 C12 — 1.0–10 pF Johanson Variable 5501
 L1, L2 — 6 Turns, 20 AWG Wire 0.125" ID
 Z1, Z2 — 25 Ohm μ Stripline
 Z3, Z4, Z5 — 50 Ohm μ Stripline
 Board — 0.032" Glass–Teflon



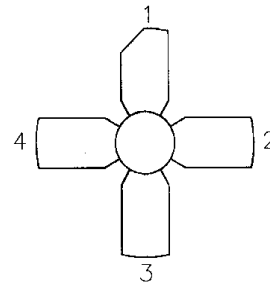
MS652/MS652S

PACKAGE STYLE M122



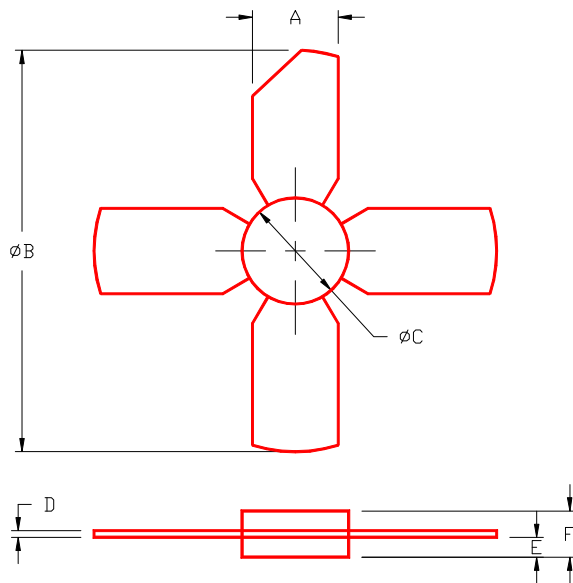
	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	1.010/25,65	1.055/26,80	I	.640/16,26	
B	.220/5,59	.230/5,84	J	.175/4,45	.217/5,51
C	.270/6,86	.285/7,24			
D	.003/0,08	.007/0,18			
E	.117/2,97	.137/3,48			
F		.572/14,53			
G		.130/3,30			
H	.275/6,99	.285/7,24			

PIN CONNECTION



- 1. Collector
- 2. Emitter
- 3. Base
- 4. Emitter

PACKAGE STYLE M123



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84			
B	-----	1.055/26,8			
C	.275/6,99	.285/7,24			
D	.004/0,10	.006/0,15			
E	.050/1,27	.060/1,52			
F	.118/3,00	.130/3,30			

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