NPN SILICON RF POWER TRANSISTOR

DESCRIPTION:

The **ASI TVU014** is a gold metallized RF power transistor designed for Class-A, UHF and band IV and V TV transmitter applications. It utilizes emitter ballasting for high reliability and ruggedness.

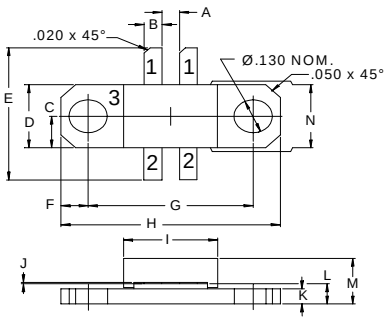
FEATURES:

- Common Emitter: Class-A, 25 V
- $\mathbf{P_G}$ = 8.5 dB at 14 W/860 MHz
- ***Omnigold***™ Metalization System
- Internal input matching

MAXIMUM RATINGS

$\mathbf{I_C}$	2 x 2.6 A
$\mathbf{V_{CBO}}$	45 V
$\mathbf{V_{CEO}}$	25 V
$\mathbf{V_{EBO}}$	4.0 V
$\mathbf{P_{DISS}}$	65 W @ T_C = 25 °C
$\mathbf{T_J}$	-65 °C to +200 °C
$\mathbf{T_{STG}}$	-65 °C to +150 °C
$\mathbf{\theta_{JC}}$	2.5 °C/W

PACKAGE STYLE .250 BAL FLG



DIM	MINIMUM inches / mm	MAXIMUM inches / mm
A	.060 / 1.52	
B	.055 / 1.40	.065 / 1.65
C	.125 / 3.18	
D	.243 / 6.17	.255 / 6.48
E	.630 / 16.00	.670 / 17.01
F	.092 / 2.34	
G	.555 / 14.10	.565 / 14.35
H	.739 / 18.77	.750 / 19.05
I	.315 / 8.00	.327 / 8.31
J	.002 / 0.05	.006 / 0.15
K	.055 / 1.40	.065 / 1.65
L	.075 1.91	.095 / 2.41
M		.190 / 4.83
N	.245 / 6.22	.257 / 6.53

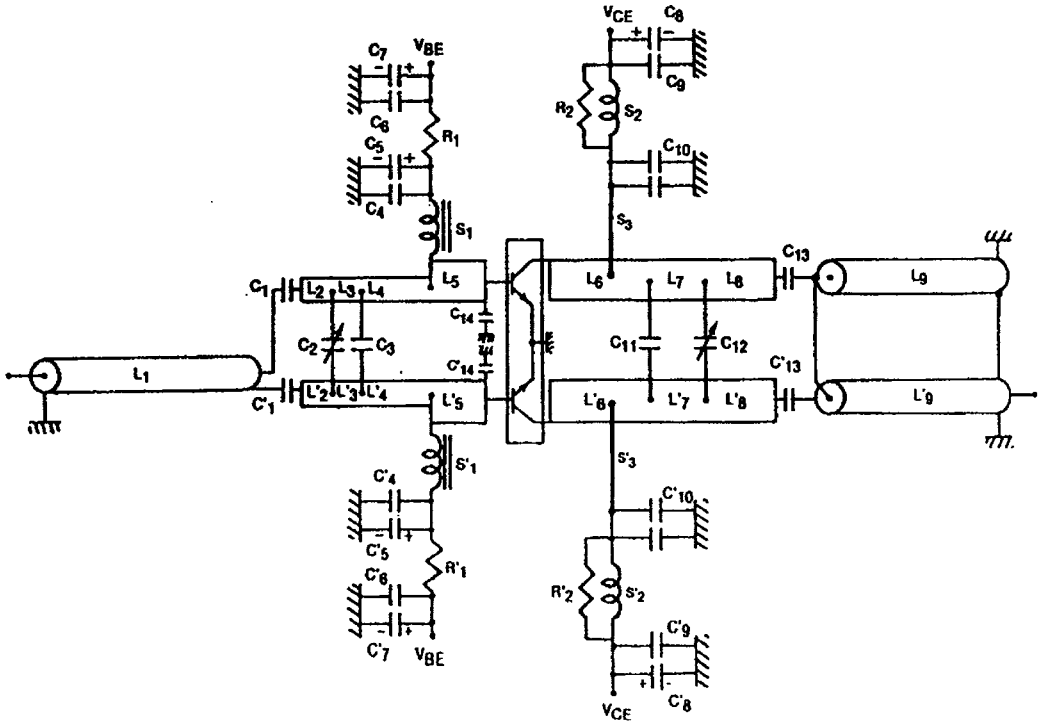
1 = COLLECTOR 2 = BASE 3 = EMITTER

ORDER CODE: ASI10647

CHARACTERISTICS T_C = 25 °C

SYMBOL	TEST CONDITIONS	MINIMUM	TYPICAL	MAXIMUM	UNITS
$\mathbf{BV_{CBO}}$	I_C = 20 mA	45			**V**
$\mathbf{BV_{CEO}}$	I_C = 40 mA	25			**V**
$\mathbf{BV_{EBO}}$	I_E = 5.0 mA	3.0			**V**
$\mathbf{h_{FE}}$	V_{CE} = 20 V I_C = 0.5 A	10		200	**---**
$\mathbf{C_{OB}}$	V_{CB} = 25 V f = 1.0 MHz			20	**pF**
$\mathbf{P_G}$	V_{CE} = 25 V I_C = 2 x 850 mA f = 845 MHz	8.5			**dB**
$\mathbf{IMD_1}$	P_{OUT} = 14 W P_{IN} = 2.0 W	-50			**dBc**

TEST CIRCUIT



C1, C'1,
C13, C'13 : 68pF, ATC 100A
C2 : 4.5pF Adjustable Johanson
C3 : 4.7pF, ATC 100A
C4, C'4, C6, C'6, C9, C'9,
C10, C'10 : 100pF, ATC 100A + 1nF LCC Chip + 10nF LCC Chip
C5, C'5 : 4.7µF, 25V, Tantalum Capacitor
C7, C'7 : 10µF, 25V, Tantalum Capacitor
C8, C'8 : 22µF, 35V, Tantalum Capacitor
C11 : 4.7pf, ATC 100A
C12 : 8pF Adjustable Johanson
C14, C'14 : 22pF, ATC 100A

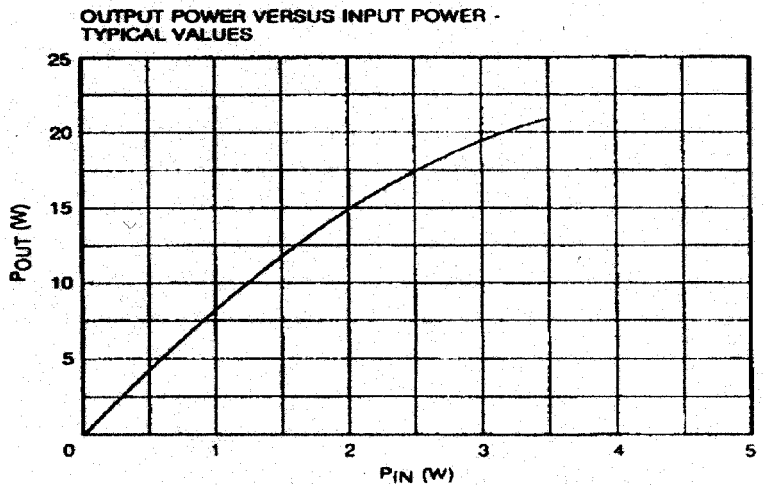
L1, L9, L'9: 50Ω Coaxial Wire Diameter 2.2mm, Length 29mm on 70Ω Transmission Line
L2, L'2 : 50Ω Printed Transmission Line Length 4mm
L3, L'3 : 50Ω Printed Transmission Line Length 3mm
L4, L'4 : 50Ω Printed Transmission Line Length 9.5mm
L5, L'5 : 39Ω Printed Transmission Line Length 7mm
L6, L'6 : 39Ω Printed Transmission Line Length 15mm
L7, L'7 : 39Ω Printed Transmission Line Length 8mm
L8, L'8 : 39Ω Printed Transmission Line Length 10mm

R1, R'1 : 4.7Ω, 1/2W
R2, R'2 : 1207Ω, 1/2W

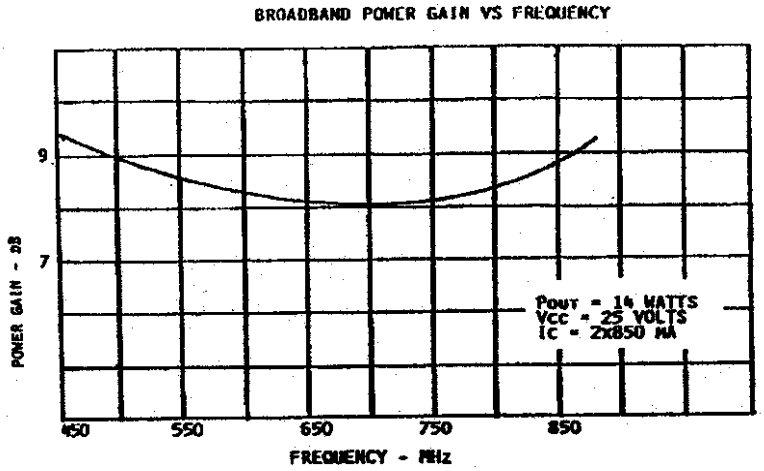
S1, S'1 : 470nH Molded
S2, S'2 : 5 Turns, Diameter Wire 0.5mm on 3mm I.D.
S3, S'3 : Diameter Wire 1.2mm, Length 12mm

Substrate: Teflon Glass 30Mils, Er = 2.55

POWER OUTPUT vs POWER INPUT



BROADBAND POWER GAIN vs FREQUENCY



INTERMODULATION DISTORTION & CROSS MODULATION DISTORTION vs POWER OUTPUT