



SOLID STATE MICROWAVE

THOMSON-CSF COMPONENTS CORPORATION

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**2N5641
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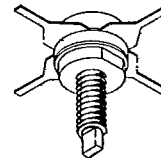
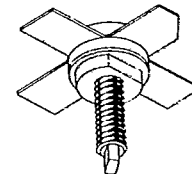
7 W/20 W/40 W, 28 V, VHF POWER TRANSISTOR

DESCRIPTION:

These SSM devices are epitaxial silicon NPN-planar transistors designed primarily for 12.5 volt AM class C rf amplifiers functional in the aviation band 118-136 MHz and for 28V FM class C rf amplifiers utilized in ground station transmitters. These devices utilize ballasted emitter resistors and improved metalization systems to achieve optimum load mismatch capability.

FEATURES:

- Designed for VHF, 12.5V AM and 28V FM transmitters
- Withstands severe mismatch under operating conditions
- Low Inductance stripline package
- All leads electrically isolated from stud


MT-71

MT-72

ABSOLUTE MAX. RATINGS (+25°C except where noted)

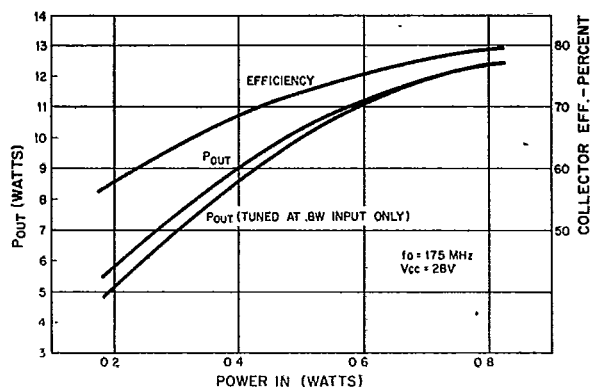
Symbol	Characteristic	2N5641	2N5642	2N5643
V _{CB0}	Collector to Base Voltage	65.V	65.V	65.V
V _{CEO}	Collector to Emitter Voltage	35.V	35.V	35.V
V _{EBO}	Emitter to Base Voltage	4.V	4.V	4.V
I _C (max)	Continuous Collector Current	1.0A	3.0A	5.0A
P _D	Total Dissipation at 25°C Stud	15.W	30.W	60.W
θ _{JC}	Thermal Resistance (Junction to Stud)	11.7°C/W	5.8°C/W	2.9°C/W
T _J	Junction Temperature	-65°C to 200°C	-65°C to 200°C	-65°C to 200°C
T _{stg}	Storage Temperature	-65°C to 200°C	-65°C to 200°C	-65°C to 200°C
Pkg	Package	MT71	MT72	MT72

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Symbol	Characteristic	Test Conditions	2N5641		2N5642		2N5643	
			Min.	Max.	Min.	Max.	Min.	Max.
BV _{CEO}	Collector to Emitter Breakdown Voltage	I _C = 200mA, I _B = 0 Pulsed through 25mH	35.0V	—	35.0V	—	35.0V	—
BV _{CES}	Collector to Emitter Breakdown Voltage	I _C = 200mA, V _{BE} = 0 Pulsed through 25mH	65.0V	—	65.0V	—	65.0V	—
BV _{EBO}	Emitter to Base Breakdown Voltage	I _E = 5mA, I _C = 0 I _E = 10mA, I _C = 0	4.0V	—	4.0V	—	4.0V	—
I _{CBO}	Collector Cutoff Current	V _{CB} = 30V, I _E = 0	—	1.0mA	—	1.0mA	—	1.0mA
h _{FE}	DC Current Gain	V _{CE} = 5V, I _C = 100mA V _{CE} = 5V, I _C = 200mA V _{CE} = 5V, I _C = 500mA	5.0	—	5.0	—	5.0	—
f _T	Gain Bandwidth Product	V _{CE} = 10V, I _C = 100mA V _{CE} = 10V, I _C = 200mA V _{CE} = 10V, I _C = 500mA f _o = 100mHz	300.mHz	—	250.mHz	—	200.mHz	—
C _{ob}	Output Capacitance	V _{CB} = 30V, I _E = 0V f _o = 1.0mHz	—	15. pF	—	35. pF	—	65. pF
P _{out}	Power Output Class C	f _o = 175mHz, V _{CE} = 28V	7.W	—	20.W	—	40.W	—
P _g	Power Gain Class C	f _o = 175mHz, V _{CE} = 28V	8.4 dB	—	8.2 dB	—	7.6 dB	—
η	Collector Efficiency Class C	f _o = 175mHz, V _{CE} = 28V	60.%	—	60.%	—	60.%	—



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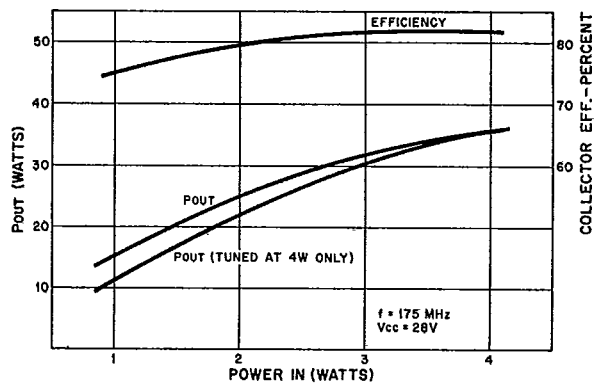


Power Output vs Power Input

$f = 175 \text{ MHz}, V_{cc} = 28\text{V}$			
PIN WATTS	POUT WATTS	INPUT OHMS	OUTPUT OHMS
0.2	5.8	$2.15 - j 1.95$	$23.23 - j 29.68$
0.4	9.08	$2.42 - j 1.57$	$22.08 - j 29.50$
0.6	11.19	$2.52 - j 1.15$	$21.80 - j 29.15$
0.8	12.67	$2.57 - j 5.25$	$18.55 - j 30.38$

Network Impedance at Transistor Terminals

2N5642

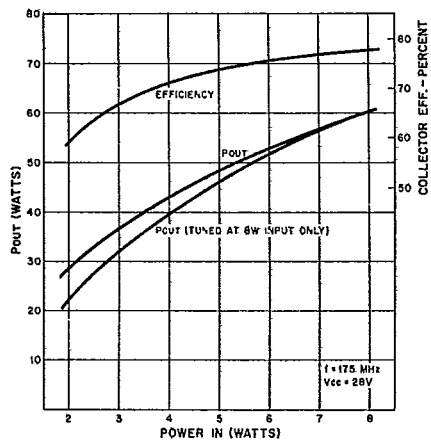


Power Output vs Power Input

$f = 175 \text{ MHz}, V_{cc} = 28\text{V}$			
PIN WATTS	POUT WATTS	INPUT OHMS	OUTPUT OHMS
1.0	15.3	$1.0 + j 1.15$	$10.22 - j 14.90$
2.0	24.9	$1.07 + j 1.30$	$9.42 - j 12.37$
3.0	31.7	$1.12 + j 1.15$	$9.00 - j 9.60$
4.0	35.9	$1.20 + j 1.25$	$9.92 - j 8.00$

Network Impedance at Transistor Terminals

2N5643



Power Output vs Power Input

$f = 175 \text{ MHz}, V_{cc} = 28\text{V}$			
PIN WATTS	POUT WATTS	INPUT OHMS	OUTPUT OHMS
2.0	28.5	$.85 + j 1.20$	$3.25 - j 7.05$
4.0	43.0	$1.02 + j 1.32$	$4.45 - j 5.40$
6.0	53.0	$1.01 + j 1.42$	$5.25 - j 4.42$
8.0	60.5	$1.05 + j 1.35$	$5.45 - j 4.12$

Network Impedance at Transistor Terminals