

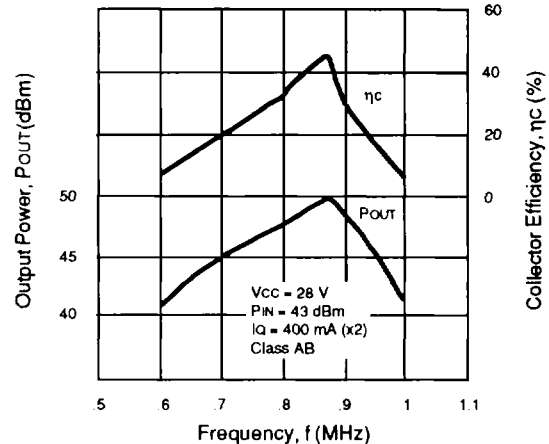
FEATURES

- **HIGH POWER AND HIGH GAIN:** $V_{CC} = 28\text{ V}$, Class AB
NEM080C69-28: $P_{O} = 49.6\text{ dBm}$, $GP = 5.6\text{ dB}$ (TYP)
NEM060C69-28: $P_{O} = 50.2\text{ dBm}$, $GP = 8.2\text{ dB}$ (TYP)
- **GOLD METALLIZATION**
- **PUSH-PULL STRUCTURE**
- **INTERNALLY MATCHED**
- **IDEAL FOR TV TRANSMITTER APPLICATIONS**

DESCRIPTION

NEM060C69-28 and NEM080C69-28 are NPN epitaxial UHF power bipolars designed specifically for broadcast and other high power applications operating at 620 and 860 MHz, respectively. With an exceptionally high power output of over 100 watts, this series also provides high gain, high efficiency, and high resistance to burn-out with load mismatch.

NEM080C69-28
OUTPUT POWER AND COLLECTOR
EFFICIENCY vs. FREQUENCY



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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

PART NUMBER EIAJ ¹ REGISTERED NUMBER PACKAGE OUTLINE			NEM060C69-28 2SC3660 69			NEM080C69-28 2SC3660A 69		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX	MIN	TYP	MAX
P _{OUT}	Output Power at $V_{CC} = 28\text{ V}$, Class AB $f = 620\text{ MHz}$, $P_{IN} = 42\text{ dBm}$, $I_Q = 100\text{ mA} \times 2$ $f = 860\text{ MHz}$, $P_{IN} = 44\text{ dBm}$, $I_Q = 400\text{ mA} \times 2$	dBm dBm	49.5	50.2		49	49.6	
η _c	Collector Efficiency at $V_{CC} = 28\text{ V}$, Class AB, $f = 620\text{ MHz}$, $P_{IN} = 42\text{ dBm}$, $I_Q = 100\text{ mA} \times 2$ $f = 860\text{ MHz}$, $P_{IN} = 44\text{ dBm}$, $I_Q = 400\text{ mA} \times 2$	% %	50	60		40	50	
I _{CBO} ²	Collector Cutoff Current at $V_{CB} = 30\text{ V}$, $I_E = 0$	mA			8			8
I _{EBO} ²	Emitter Cutoff Current at $V_{EB} = 2\text{ V}$, $I_C = 0$	mA			8			8
h _{FE} ²	DC Forward Current Gain at $V_{CE} = 10\text{ V}$, $I_C = 2\text{ A}$		30	60	100	30	60	100
C _{OB} ²	Output Capacitance at $V_{CB} = 28\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$	pF		120	200		120	200

Note:

1. Electronic Industrial Association of Japan.
2. Each Side.

NEM060C69-28, NEM080C69-28

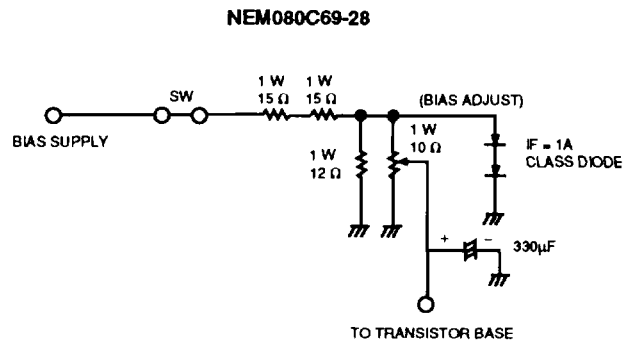
ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CB0}	Collector to Base Voltage	V	55
V _{CE0}	Collector to Emitter Voltage	V	32
V _{EB0}	Emitter to Base Voltage	V	3
I _C	Collector Current	A	24
R _{TH}	Thermal Resistance (Junction to Case)	°C/W	0.55
P _T	Total Power Dissipation (T _C = 25°C)	W	320
T _J	Junction Temperature	°C	200
T _{STG}	Storage Temperature	°C	-65 to +150

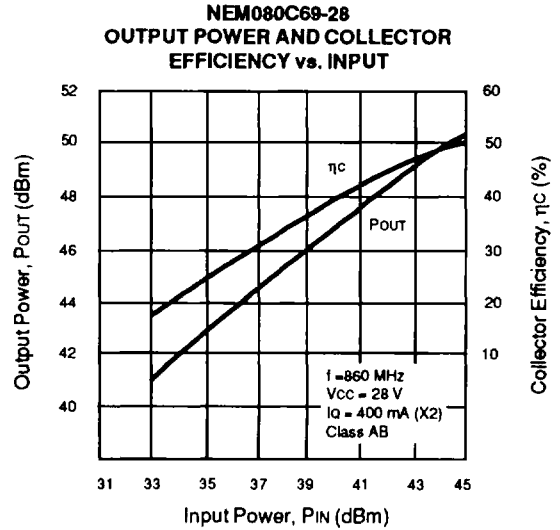
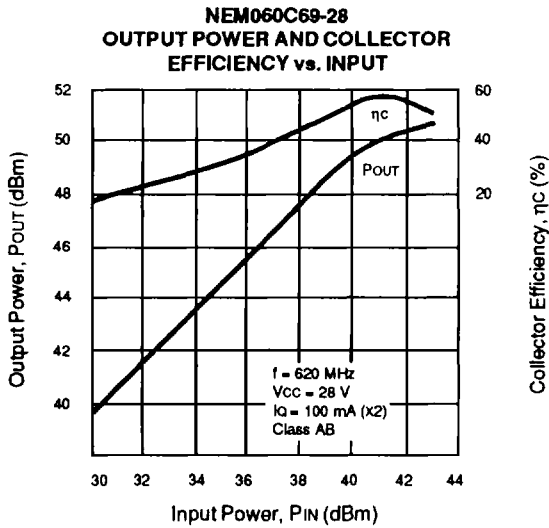
Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.

BASE BIAS CIRCUIT

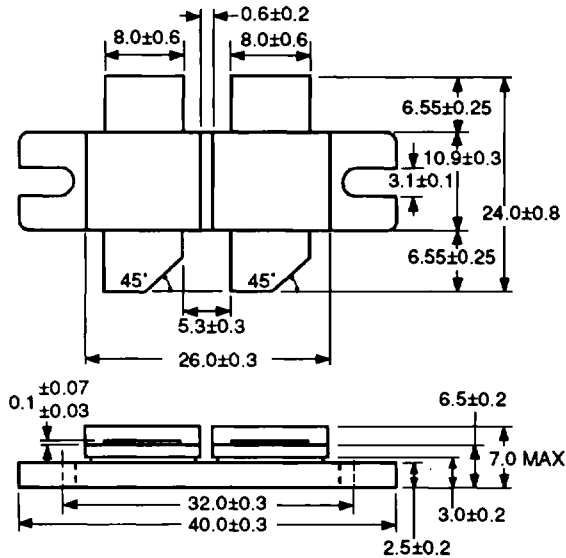


TYPICAL PERFORMANCE CURVES (T_A = 25°C)



OUTLINE DIMENSIONS (Units in mm)

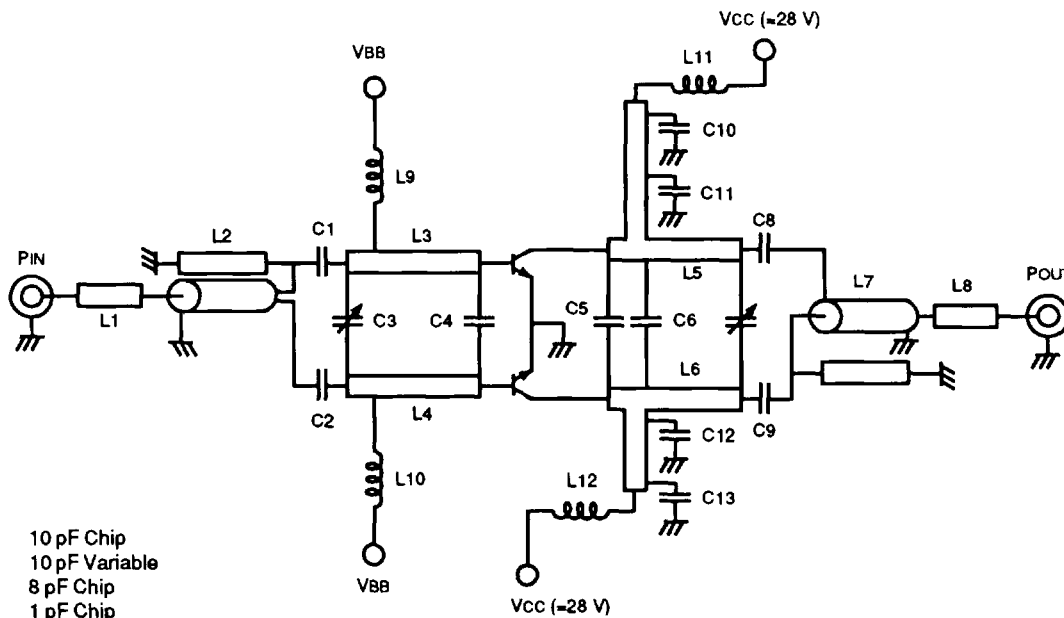
PACKAGE OUTLINE 69



TEST CIRCUIT SCHEMATIC

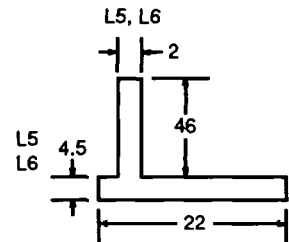
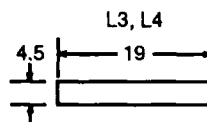
NEM080C69-28

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- C1, C2 = 10 pF Chip
- C3, C7 = 10 pF Variable
- C4, C5 = 8 pF Chip
- C6 = 1 pF Chip
- C8, C9 = 12 pF Chip
- C10, C13 = 1000 pF Chip
- C11, C12 = 10,000 pF Chip

- L1 Micro strip line 28 mm x 4.5 mm
- L2 and L7 50 Ω semi rigid 75 mm long
- L3-6 Micro strip line



- L9, L10 5 turns 5 mm dia. 0.6 mm wire
- L11, L12 5 turns 6 mm dia. 1.2 mm wire