

NEC[®]**CLASS AB/C, 860 MHz,
28 VOLT MATCHED TRANSISTOR****NEM081568-28
NEM085068-28**

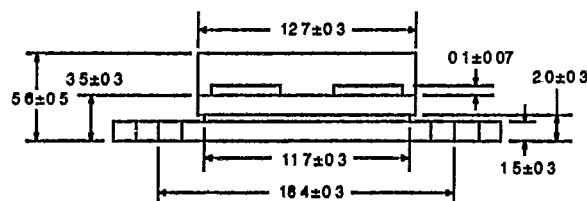
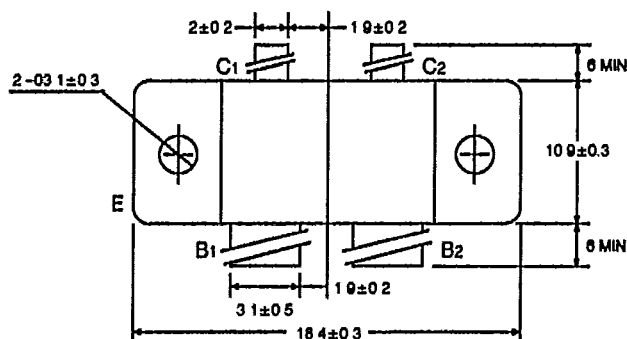
T-33-13

FEATURES

- HIGH POWER AND HIGH GAIN: $f = 860$ MHz, Class AB
- NEM081568-28: $P_o > 41$ dBm, $G_p > 8$ dB
- NEM085068-28: $P_o > 46.2$ dBm, $G_p > 6.2$ dB
- GOLD METALLIZATION
- PUSH-PULL STRUCTURE
- INTERNALLY MATCHED
- IDEAL FOR TV TRANSMITTER

DESCRIPTION

This NEM series of NPN epitaxial power bipolars is designed specifically for broadcast and other high power applications operating at 860 MHz. This series provides high power output of either 12.6 or 42 watts, high gain, high efficiency, and high resistance to burn-out with load mismatch. This NEM series is ideal for class AB applications.

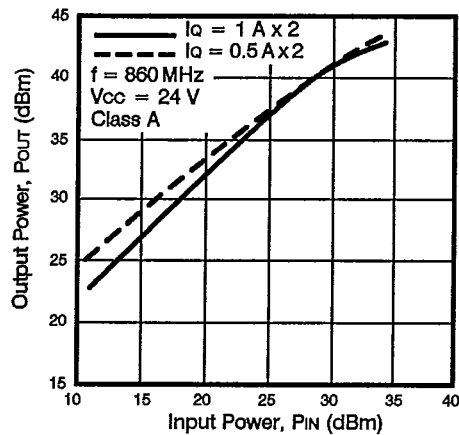
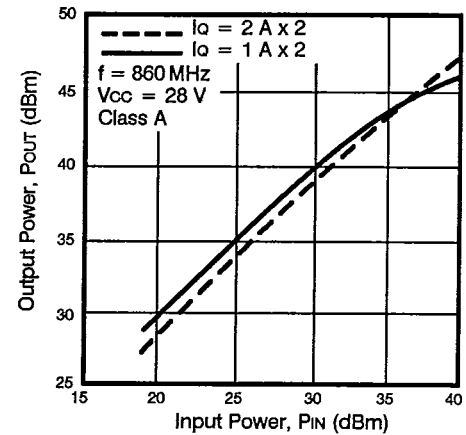
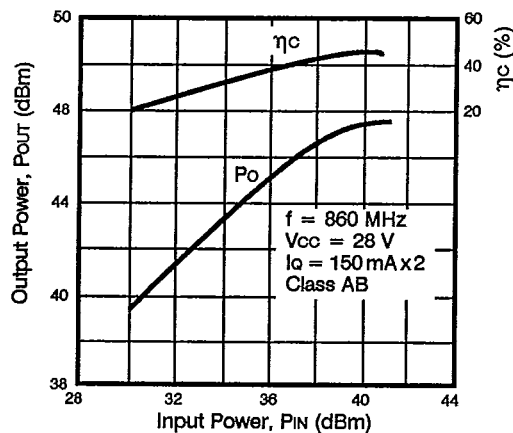
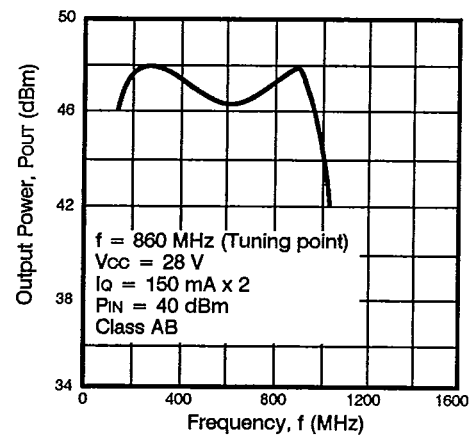
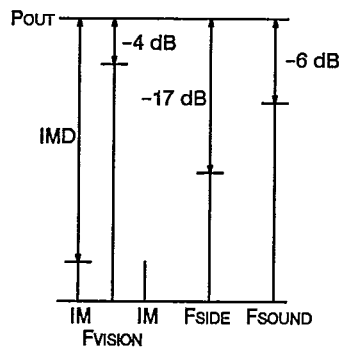
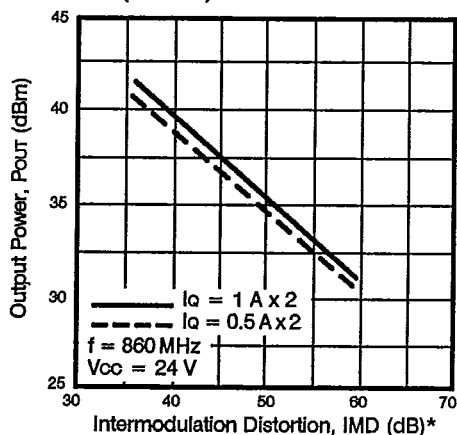
OUTLINE DIMENSIONS (Units in mm)**OUTLINE 68**

B1 = Base 1 C1 = Collector 1 E = Emitter
B2 = Base 2 C2 = Collector 2

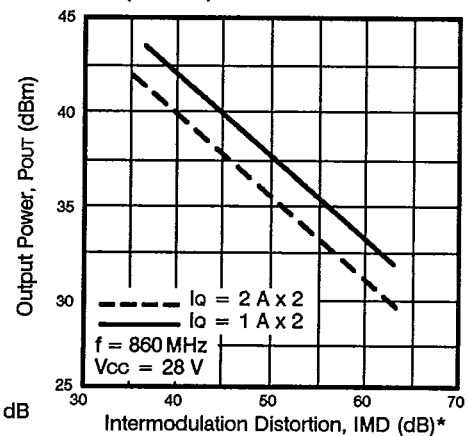
ELECTRICAL SPECIFICATIONS ($T_A = 25^\circ\text{C}$)

PART NUMBER PACKAGE OUTLINE			NEM081568-28 68			NEM085068-28 68		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX	MIN	TYP	MAX
I_{CBO}^*	Collector Cutoff Current at $V_{CB} = 30$ V	mA			2			4
I_{EBO}^*	Emitter Cutoff Current at $V_{EB} = 2$ V	mA			2			4
h_{FE}^*	DC Forward Current Gain at $V = 10$ V $I_C = 1.6$ A $I_E = 2$ A		20	60	120	20	60	120
COB	Output Capacitance at $V_{CB} = 28$ V, $I_E = 0$, $f = 1$ MHz	pF		24	36		40	60
VSWR	$f = 860$ MHz, $I_o = 150$ mA x 2 class AB $V_{CC} = 24$ V, $P_{OUT} = 41$ dBm $V_{CC} = 28$ V, $P_{OUT} = 46.2$ dBm		∞			∞		
P_{OUT}	$f = 860$ MHz, $I_o = 150$ mA x 2 (class AB) $P_{IN} = 33$ dBm, $V_{CC} = 24$ V $P_{IN} = 40$ dBm, $V_{CC} = 28$ V	dBm dBm	41	42		46.2	47.2	
η_c	$f = 860$ MHz, $I_o = 150$ mA x 2 (class AB) $P_{IN} = 33$ dBm, $V_{CC} = 24$ V $P_{IN} = 40$ dBm, $V_{CC} = 28$ V	% %	45		40			

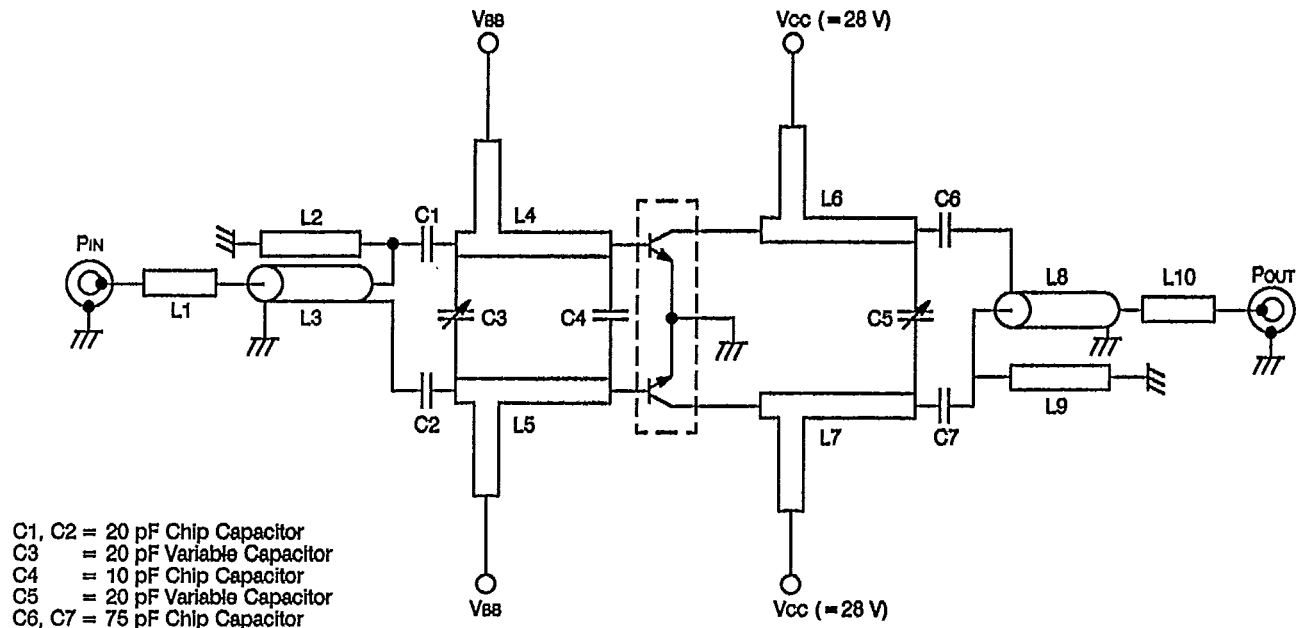
*Each Side

TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = 25^\circ\text{C}$)NEM081568-28
OUTPUT POWER vs. INPUT POWERNEM085068-28
OUTPUT POWER vs. INPUT POWERNEM085068-28
OUTPUT POWER AND EFFICIENCY
vs. INPUT POWERNEM085068-28
OUTPUT POWER vs. FREQUENCYNEM081568-28
INTERMODULATION DISTORTION
(3-TONE) vs. OUTPUT POWER

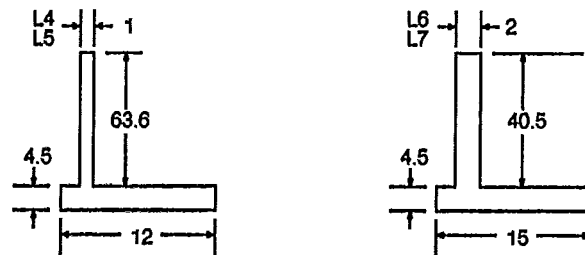
Vision Carrier = Reference -4 dB
Sound Carrier = Reference -6 dB
Sideband Carrier = Reference -17 dB

NEM085068-28
INTERMODULATION DISTORTION
(3 TONE) vs. OUTPUT POWER

*Worst case for three-tone spectrum shown.

NEM081568-28, NEM085068-28**NEM085068-28 200-900 MHz BROADBAND AMPLIFIER SCHEMATIC (CLASS AB)**

L1, L10 - Microstripline (23.6 x 4.5 mm)
 L2, L9 - 50 Ω semi rigid coax (65 mm x 5 mm) Use only outer conductor
 L3, L8 - 50 Ω semi rigid coax (65 mm x 5 mm) Use both center and outer conductor
 L4, L5, L6, L7 - Microstrip line



(Units in mm)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	Collector to Base Voltage	V	50
V _{CE0}	Collector to Emitter Voltage	V	32
V _{EB0}	Emitter to Base Voltage	V	3
I _C	Collector Current NEM081658-28 NEM085068-28	A A	12 15
R _{TH} (J-C)	Thermal Resistance (Junction-to-Case) NEM081658-28 NEM085068-28	$^\circ\text{C/W}$ $^\circ\text{C/W}$	1.75 1.09
P _T	Total Power Dissipation ($T_c = 25^\circ\text{C}$) NEM081658-28 NEM085068-28	W W	100 160
T _J	Junction Temperature	$^\circ\text{C}$	200
T _{STG}	Storage Temperature	$^\circ\text{C}$	-65 to +200