

40406, 40408, 40410, 40407, 40409, 40411

Silicon N-P-N and P-N-P Power Transistors

For Audio-Amplifier Applications

RCA-40406-40411, inclusive, are diffused-junction silicon n-p-n and p-n-p transistors intended for use in audio amplifiers. Giving high-quality performance economically, these six devices have power dissipation ratings of 1 to 150 W. Types 40406, 40407, and

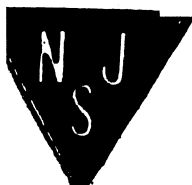
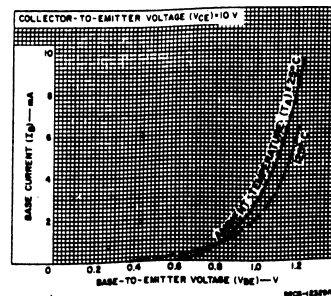
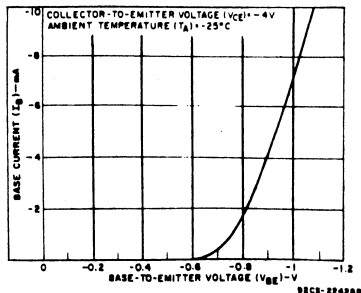
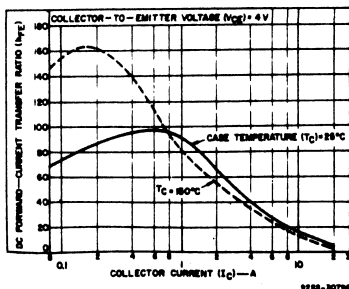
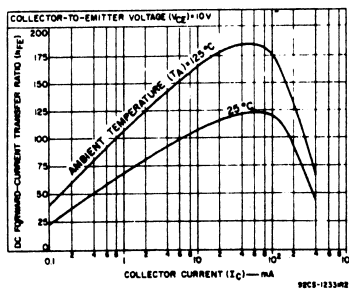
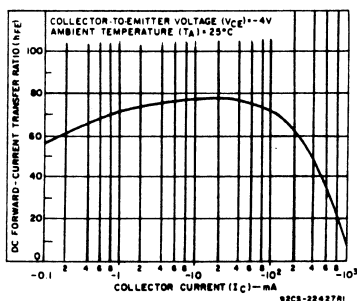
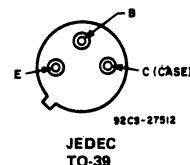
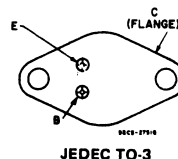
40408 are supplied in JEDEC TO-39 hermetic packages; types 40409 and 40410 are in TO-39 packages mounted on integral heat radiators. The 40411 unit, intended for use in audio output stages, is in a steel JEDEC TO-3 hermetic package.

	40406	40407	40408	40409	40410	40411	
$V_{CE(sus)}$	-50	50	90	-	-	-	V
$V_{CE(sus)}$	-	-	-	90	-90	90	V
$R_{BE} = 100 \Omega$							
V_{EBO}	-4	4	4	4	-4	4	V
I_C	-0.7	0.7	0.7	0.7	-0.7	30	A
I_B	-0.2	0.2	0.2	0.2	-0.2	15	A
P_T :							
$T_A < 25^\circ C$	1	1	1	-	-	-	W
$T_A < 50^\circ C$	-	-	-	3	3	-	W
$T_C < 25^\circ C$	-	-	-	-	-	150	W
T_J				-65 to +200			$^\circ C$

Features:

- 40406 & 40407
 - $V_{CE(sus)} = -50$ V max. (40406)
 - $V_{CE(sus)} = 50$ V max. (40407)
 - 40406 is p-n-p complement of 40407
 - 1 W dissipation rating
- 40408
 - $V_{CE(sus)} = 90$ V max.
 - 1 W dissipation rating
- 40409 & 40410
 - $V_{CE(sus)} = 90$ V max. (40409)
 - $V_{CE(sus)} = -90$ V max. (40410)
 - 40410 is p-n-p complement of 40409
 - 3 W free-air dissipation rating
- 40411
 - $V_{CE(sus)} = 90$ max.
 - Homotaxial-base construction
 - 150 W dissipation rating

TERMINAL DESIGNATIONS



40406, 40408, 40410, 40407, 40409, 40411

ELECTRICAL CHARACTERISTICS, $T_C = 25^\circ$ Unless Otherwise Specified

CHARACTER- ISTIC	TEST CONDITIONS			LIMITS								UNITS
	VOLT- AGE V dc	CUR- RENT A dc		40406# 40407		40408		40409 40410#		40411		
	V _{CE}	I _C	I _B	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
I _{CBO} I _E = 0	10*			—	0.25*	—	—	—	—	—	—	μA
I _{CEO}	40 80			—	1	—	—	—	—	—	—	μA
T _C = 150° C 40406 40407 40408	40 40 80			—	0.01 0.1	—	—	—	—	—	—	mA
I _{CER} R _{BE} = 100 Ω	80			—	—	—	—	—	1	—	500	μA
T _C = 150° C	80			—	—	—	—	—	0.1	—	2	mA
I _{EBO} V _{BE} = -4 V		0		—	100	—	100	—	100	—	500	μA
V _{CEO(sus)}		0.1 ^a	0	50 ^b	—	90 ^b	—	—	—	—	—	V
V _{CER(sus)} R _{BE} = 100 Ω		0.1 0.2		—	—	—	—	—	—	90	—	V
V _{BE}	10 4 4 4	0.001 ^a 0.01 ^a 0.15 ^a 4 ^a		—	0.8 ^c	—	—	—	—	—	—	V
V _{CE(sat)}		0.15 ^a 4 ^a	0.015 0.4	—	—	—	1.4	—	1.4	—	—	V
h _{FE}	40406 40407 40408 40409-10 40411	10 10 4 4 4	0.1 mA ^a 0.001 ^a 0.01 ^a 0.15 ^a 4 ^a	30 40 — — —	200 200 — — —	— — 40 — —	— — 200 — —	— — — 50 —	— — — 250 —	— — — — 35	— — — — 100	
h _{fe} f = 20 MHz	10	0.05		6 ^a	—	—	—	—	—	—	—	
f _T	4 4	0.05 4		100 (typ.)	—	100 (typ.)	—	100 (typ.)	—	—	—	MHz kHz
C _{obo} I _E = 0 f = 1 MHz	10*			15 ^a	—	—	—	—	—	—	—	pF
I _{S/b} t = 1 s nonrep	40			—	—	—	—	5*	—	—	—	A
θ _{JC}				—	35	—	35	—	—	—	1.17	°C/W
θ _{JA}				—	175	—	175	—	50	—	—	

- * For p-n-p devices, voltage and current values are negative
 • V_{CB} • 40407 only * 40410 only
 • Pulsed; pulse duration = 300 μs, duty factor ≤ 2%

- b CAUTION: The sustaining voltage V_{CEO(sus)} MUST NOT be measured on a curve tracer. V_{CEO(sus)} should be measured by the pulse method (Note 'a').
 c 40406 tested at I_C = -0.1 mA

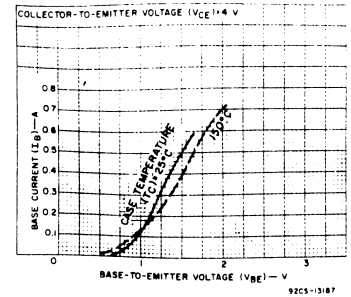


Fig. 6 — Typical input characteristics for 40411.

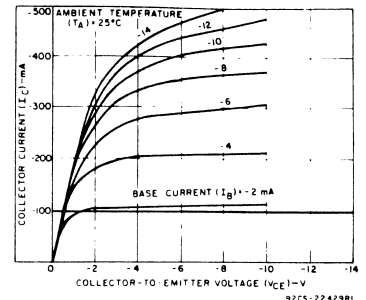


Fig. 7 — Typical output characteristics for 40406 and 40410.

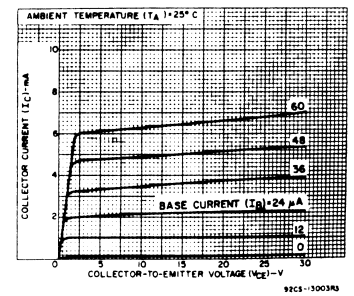


Fig. 8 — Typical output characteristics for 40407, 40408, and 40409.

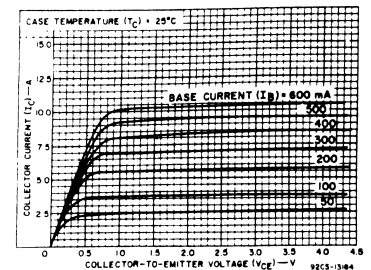


Fig. 9 — Typical output characteristics for 40411.