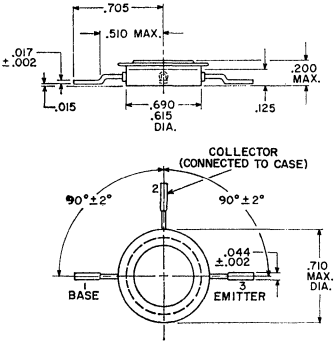
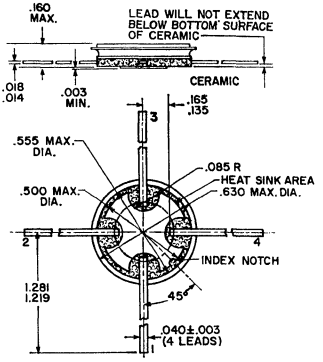
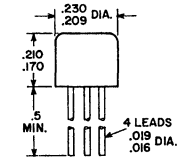
Outlines (cont'd)

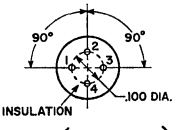


24

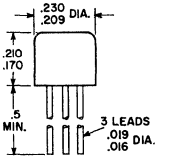


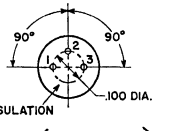
25



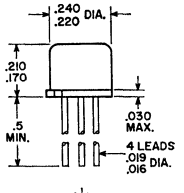


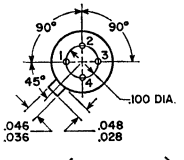
26 (4-Lead)



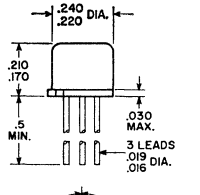


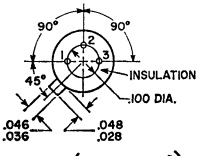
26 (3-Lead)



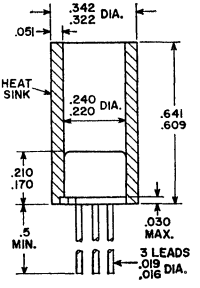


27 (4-Lead)

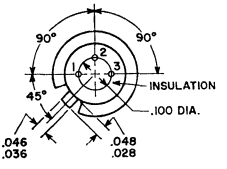




27 (3-Lead)

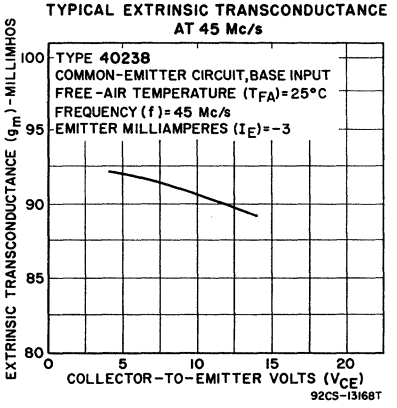


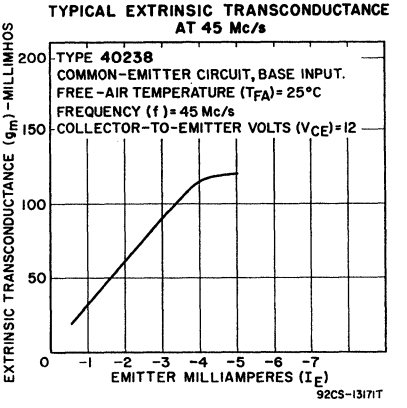
27 (3-Lead With Heat Sink)



CHARACTERISTICS (cont'd)

Extrinsic Transconductance (V_{CE} = 12 V, I_E = −3 mA, f = 45 Mc/s)	g_m	90	mmhos
Maximum Available Amplifier Gain For 1, 2, or 3 Stages (V_{CE} = 12 V, I_E = −3 mA, f = 45 Mc/s)	MAG	45.3	dB
Maximum Usable Amplifier Gain, Unneutralized (V_{CE} = 12 V, I_E = −3 mA, f = 45 Mc/s):			
For 1 stage	MUG	22.9	dB
For 2 stages	MUG	20.7	dB
For 3 stages	MUG	19	dB
Maximum Usable Amplifier Gain, Neutralized (V_{CE} = 12 V, I_E = −3 mA, f = 45 Mc/s):			
For 1 stage	MUG	28	dB
For 2 stages	MUG	25.8	dB
For 3 stages	MUG	24.1	dB





40239 TRANSISTOR

Si n-p-n type used as 45-Mc/s if amplifier in television receivers. **Outline** No.27 (4-lead). **Terminals:** 1 - emitter, 2 - base, 3 - collector, 4 - connected to case. This type is identical with type 40238 except for the following item:

CHARACTERISTICS

Static Forward-Current Transfer Ratio (V_{CE} = 6 V, I_E = −1 mA)	h_{FE}	27 to 100

40240 TRANSISTOR

Si n-p-n type used as 45-Mc/s if amplifier in television receivers. **Outline** No.27 (4-lead). **Terminals:** 1 - emitter, 2 - base, 3 - collector, 4 - connected to case. This type is identical with type 40238 except for the following item:

CHARACTERISTICS

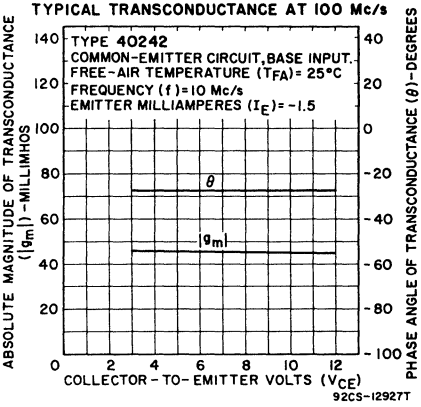
Static Forward-Current Transfer Ratio (V_{CE} = 6 V, I_E = −1 mA)	h_{FE}	27 to 275

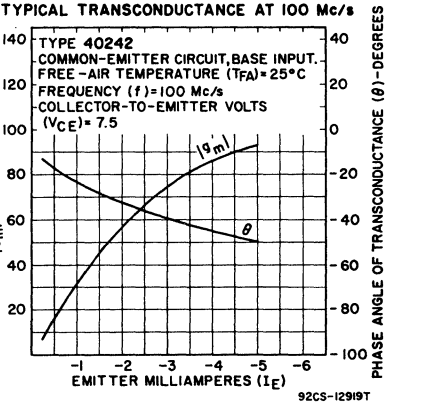
40242 TRANSISTOR

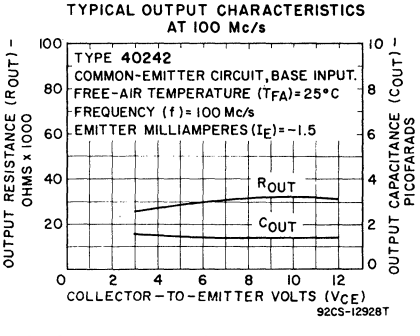
Si n-p-n planar type used in rf-amplifier applications in conjunction with types 40243 (mixer), 40244 (rf oscillator), and 40245 and 40246 (if amplifiers) to make up a "front-end" and if complement for FM and AM/FM receivers. **Outline** No.27 (4-lead). **Terminals:** 1 - emitter, 2 - base, 3 - collector, 4 - connected to case.

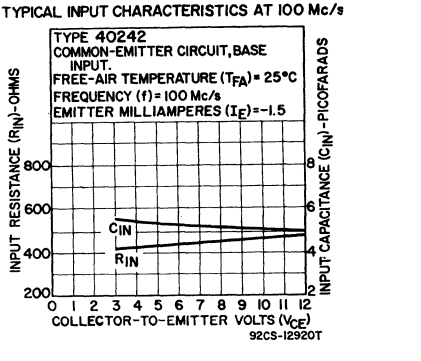
MAXIMUM RATINGS

Collector-to-Base Voltage:			
Emitter open	V_{CBO}	35	V
V_{BE} = −1 V	V_{CBV}	35	V
Emitter-to-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	50	mA
Transistor Dissipation:			
T_A up to 25°C	P_T	180	mW
T_A above 25°C	P_T	See curve page 112	
Temperature Range:			
Operating (T_A) and Storage (T_{STG})		−65 to 175	°C
Lead-Soldering Temperature (10 s max)	T_L	255	°C









CHARACTERISTICS

Collector-to-Base Breakdown Voltage:			
I_C = 0.001 mA, I_E = 0	$V_{(BR)CBO}$	35 min	V
V_{BE} = −1 V, I_C = 0.001 mA	$V_{(BR)CBV}$	35 min	V
Emitter-to-Base Breakdown Voltage (I_E = −0.001 mA, I_C = 0)	$V_{(BR)EBO}$	3 min	V
Collector-Cutoff Current (V_{CE} = 1 V, I_E = 0)	I_{CBO}	0.02 max	μA
Emitter-Cutoff Current (V_{EB} = 5 V, I_C = 0)	I_{EBO}	1 max	μA
Static Forward-Current Transfer Ratio (V_{CE} = 6 V, I_E = −1 mA)	h_{FE}	40 to 170	
Extrinsic Transconductance (V_{CE} = 7.5 V, I_E = −1.5 mA, f = 100 Mc/s)	g_m	45	mmhos
Maximum Available Amplifier Gain* (V_{CE} = 7.5 V, I_E = −1.5 mA, f = 100 Mc/s)	MAG	38.3	dB
Maximum Usable Amplifier Gain*:			
Neutralized—V_{CE} = 7.5 V, I_E = −1.5 mA, f = 100 Mc/s	MUG	21.5	dB
Unneutralized—V_{CC} = 15 V, f = 100 Mc/s	MUG	16.4	dB
Input Capacitance (V_{CE} = 7.5 V, I_E = −1.5 mA, f = 100 Mc/s)	C_{ie}	5.2	pF
Feedback Capacitance (V_{CE} = 8 V, I_E = 0, f = 1 Mc/s)	C_{cb}	0.65 max	pF

CHARACTERISTICS (cont'd)

Input Resistance (V_{CE} = 7.5 V, I_E = −1.5 mA, f = 100 Mc/s)	R_{ie}	450	Ω
Output Resistance (V_{CE} = 7.5 V, I_E = −1.5 mA, f = 100 Mc/s)	R_{oe}	30	kΩ
Output Capacitance (V_{CE} = 7.5 V, I_E = −1.5 mA, f = 100 Mc/s)	C_{oe}	1.35	pF
Noise Figure* (V_{CC} = 15 V, R_G = 50 Ω, f = 100 Mc/s)	NF	2.5	dB

* This characteristic applies only to type 40242.

40243 TRANSISTOR

Si n-p-n planar type used in mixer applications in conjunction with types 40242 (rf amplifier), 40244 (rf oscillator), and 40245 and 40246 (if amplifiers) to make up a "front-end" and if complement for FM and AM/FM receivers. **Outline** No.27 (4-lead). **Terminals:** 1 - emitter, 2 - base, 3 - collector, 4 - case. This type is identical with type 40242 except for the following items:

MAXIMUM RATINGS

Emitter-to-Base Voltage	V_{EBO}	3	V

CHARACTERISTICS

Emitter-Cutoff Current (V_{EB} = 3 V, I_C = 0)	I_{EBO}	1 max	μA
Extrinsic Transconductance (V_{CE} = 7.5 V, I_E = −1 mA, f = 100 Mc/s)	g_m	32	mmhos
Maximum Available Conversion Gain (V_{CE} = 7.5 V, I_E = −1 mA, f = 10.7 to 100 Mc/s)	MAG_e	37.64	dB
Input Capacitance (V_{CE} = 7.5 V, I_E = −1 mA, f = 100 Mc/s)	C_{ie}	4.5	pF
Input Resistance (V_{CE} = 7.5 V, I_E = −1 mA, f = 100 Mc/s)	R_{ie}	650	Ω
Output Resistance (V_{CE} = 7.5 V, I_E = −1 mA, f = 100 Mc/s)	R_{oe}	30	kΩ
Output Capacitance (V_{CE} = 7.5 V, I_E = −1 mA, f = 100 Mc/s)	C_{oe}	1.35	pF

40244 TRANSISTOR

Si n-p-n planar type used in rf-oscillator applications in conjunction with types 40242 (rf amplifier), 40243 (mixer), and 40245 and 40246 (if amplifiers) to make up a "front-end" and if complement for FM and AM/FM receivers. **Outline** No.27 (4-lead). **Terminals:** 1 - emitter, 2 - base, 3 - collector, 4 - connected to case.

MAXIMUM RATINGS

Collector-to-Base Voltage:			
Emitter open	V_{CBO}	35	V
V_{BE} = −1 V	V_{CEV}	35	V
Emitter-to-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	50	mA
Transistor Dissipation:			
T_A up to 25°C	P_T	180	mW
T_A above 25°C	P_T	See curve page 112	
Temperature Range:			
Operating (T_A) and Storage (T_{STG})		−65 to 175	°C
Lead-Soldering Temperature (10 s max)	T_L	255	°C

CHARACTERISTICS

Collector-to-Base Breakdown Voltage:			
I_C = 0.001 mA, I_E = 0	$V_{(BR)CBO}$	35 min	V
V_{BE} = −1 V, I_C = 0.001 mA	$V_{(BR)CBV}$	35 min	V
Emitter-to-Base Breakdown Voltage (I_E = −0.001 mA, I_C = 0)	$V_{(BR)EBO}$	3 min	V
Collector-Cutoff Current (V_{CE} = 1 V, I_E = 0)	I_{CBO}	0.02 max	μA
Emitter-Cutoff Current (V_{EB} = 3 V, I_C = 0)	I_{EBO}	1 max	μA

CHARACTERISTICS (cont'd)

Static Forward-Current Transfer Ratio (V_{CE} = 6 V, I_E = −1 mA)	h_{FE}	27 to 170	
Oscillator Output Voltage, Common Base Circuit (V_{CC} = 6 V, R_L = 50 Ω, f = 120 Mc/s)	V_{ob}	55	mV
Feedback Capacitance (V_{CE} = 8 V, I_E = 0, f = 1 Mc/s)	C_{cb}	0.8 max	pF

TRANSISTOR 40245

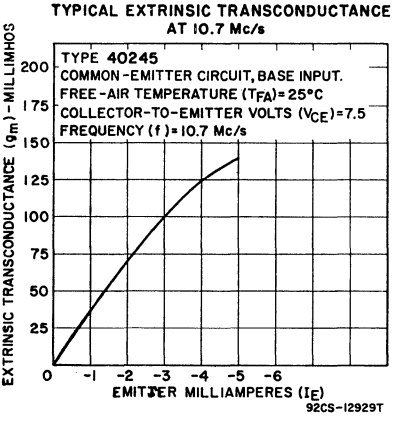
Si **n-p-n planar** type used in if-amplifier applications in conjunction with types 40242 (rf amplifier), 40243 (mixer), 40244 (rf oscillator), and 40246 (if amplifier) to make up a "front-end" and if complement for FM and AM/FM receivers. **Outline** No.27 (4-lead). **Terminals:** 1 - emitter, 2 - base, 3 - collector, 4 - connected to case.

MAXIMUM RATINGS

Collector-to-Base Voltage:			
Emitter open	V_{CBO}	35	V
V_{BE} = −1 V	V_{CEV}	35	V
Emitter-to-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	50	mA
Transistor Dissipation:			
T_A up to 25°C	P_T	180	mW
T_A above 25°C	P_T	See curve page 112	
Temperature Range:			
Operating (T_A) and Storage (T_{STG})		−65 to 175	°C
Lead-Soldering Temperature (10 s max)	T_L	255	°C

CHARACTERISTICS

Collector-to-Base Breakdown Voltage:			
I_C = 0.001 mA, I_E = 0	$V_{(BR)CBO}$	35 min	V
V_{BE} = −1 V, I_C = 0.001 mA	$V_{(BR)CBV}$	35 min	V
Emitter-to-Base Breakdown Voltage (I_E = −0.001 mA, I_C = 0)	$V_{(BR)EBO}$	3 min	V
Collector-Cutoff Current (V_{CE} = 1 V, I_E = 0)	I_{CBO}	0.02 max	μA
Emitter-Cutoff Current (V_{EB} = 3 V, I_C = 0)	I_{EBO}	1 max	μA
Static Forward-Current Transfer Ratio (V_{CE} = 6 V, I_E = −1 mA)	h_{FE}	70 to 170	
Feedback Capacitance (V_{CE} = 8 V, I_E = 0, f = 1 Mc/s)	C_{cb}	0.65 max	pF
Extrinsic Transconductance (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	g_m	70	mmhos
Maximum Available Amplifier Gain (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	MAG	51.4	dB
Maximum Usable Amplifier Gain:			
Neutralized—V_{CC} = 12 V, f = 10.7 Mc/s	MUG	33.2	dB
Unneutralized—V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s	MUG	28.1	dB



CHARACTERISTICS (cont'd)

Input Capacitance (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	C_{ie}	8.2	pF
Input Resistance (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	R_{ie}	1400	Ω
Output Resistance (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	R_{oe}	80	kΩ
Output Capacitance (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	C_{oe}	1.5	pF

40246 TRANSISTOR

Si n-p-n planar type used in if-amplifier applications in conjunction with types 40242 (rf amplifier), 40243 (mixer), 40244 (if oscillator), and 40245 (if amplifier) to make up a "front-end" and if complement for FM and AM/FM receivers. **Outline** No.27 (4-lead). **Terminals:** 1 - emitter, 2 - base, 3 - collector, 4 - connected to the case. This type is identical with type 40245 except for the following items:

CHARACTERISTICS

Input Resistance (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	R_{ie}	1200	Ω
Output Resistance (V_{CE} = 7.5 V, I_E = −2 mA, f = 10.7 Mc/s)	R_{oe}	90	kΩ

40250 POWER TRANSISTOR

Si n-p-n diffused-junction type used in audio and inverter circuits in 12-volt mobile radio and portable communications equipment and in a wide variety of intermediate- and high-power applications. JEDEC TO-66, **Outline** No.22. **Terminals:** 1 (B) - base, 2 (E) - emitter, Mounting Flange - collector and case.

MAXIMUM RATINGS

Collector-to-Base Voltage	V_{CBO}	50	V
Collector-to-Emitter Voltage:			
V_{BE} = −1.5 V	V_{CEV}	50	V
Base open	V_{CEO}	40	V
Emitter-to-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	4	A
Base Current	I_B	2	A
Transistor Dissipation:			
T_C up to 25°C	P_T	29	W
T_C above 25°C	P_T	See curve page 112	
Temperature Range:			
Operating (Junction)	T_J (opr)	−65 to 200	°C
Storage	T_{STG}	−65 to 200	°C
Pin-Soldering Temperature (10 s max)	T_P	235	°C