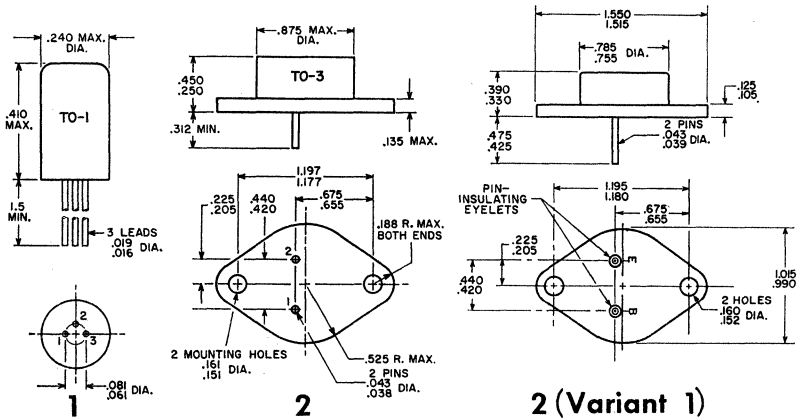
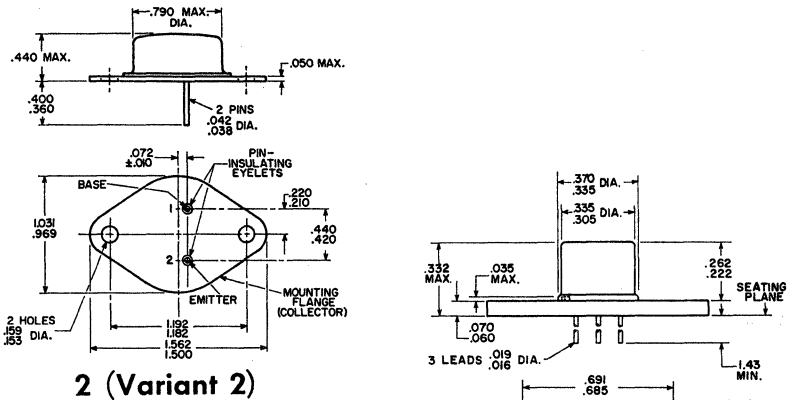


Outlines

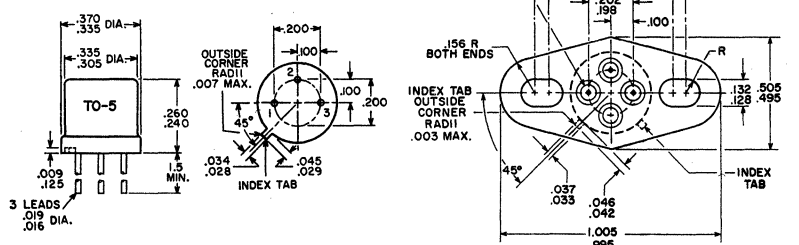


2 (Variant 1)



2 (Variant 2)

3 (With Flange)



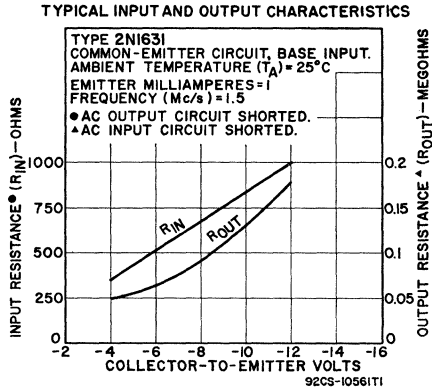
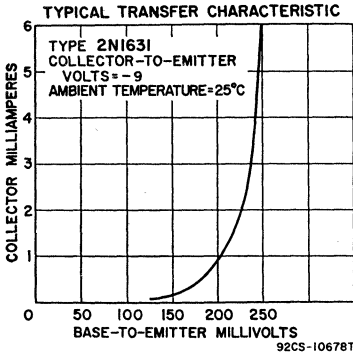
3

CHARACTERISTICS

Collector-to-Base Breakdown Voltage ($I_C = -50 \mu A$, $I_E = 0$)	$V_{(BR)CBO}$	-34 min	V
Collector-Cutoff Current ($V_{CB} = -12 V$, $I_E = 0$)	I_{CBO}	-16 max	μA
Emitter-Cutoff Current ($V_{EB} = -0.5 V$, $I_C = 0$)	I_{EBO}	-16 max	μA
Small-Signal Forward-Current Transfer Ratio ($V_{CE} = -6 V$, $I_C = -1 mA$, $f = 1 kc/s$)	h_{re}	40 to 170	
Small-Signal Forward-Current Transfer-Ratio Cutoff Frequency ($V_{CB} = -12 V$, $I_E = 1 mA$)	$f_{\alpha ftb}$	45	Mc/s
Thermal Resistance, Junction-to-Ambient	Θ_{J-A}	0.4 max	$^{\circ}C/W$

TYPICAL OPERATION IN RF-AMPLIFIER CIRCUIT

DC Collector Supply Voltage	V_{CC}	-6	-12	V
DC Collector-to-Emitter Voltage	V_{CE}	-5.7	-11	V
Emitter Current	I_E	1	1	mA
Signal-Frequency	f	1.5	1.5	Mc/s
Input Resistance	R_{ie}	520	1000	Ω
Output Resistance	R_{oe}	0.065	0.18	M Ω
Output Capacitance	C_{obo}	2.2	2	pF
Extrinsic Transconductance	g_m	36000	36000	$\mu mhos$
Maximum Power Gain	MAG	40.4	47.7	dB
Useful Power Gain (Unneutralized circuit) ...	MUG	25.3	25.6	dB



2N1632

TRANSISTOR

Ge p-n-p drift-field type used in rf-amplifier applications in battery-operated AM radio receivers. JEDEC TO-1, Outline No.1. Terminals: 1 - emitter, 2 - base, 3 - collector. This type is electrically identical with type 2N1631.

2N1637

TRANSISTOR

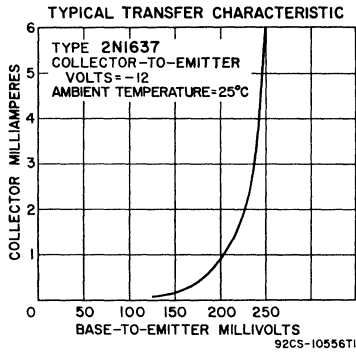
Ge p-n-p drift-field type used in rf-amplifier applications in AM automobile radio receivers. JEDEC TO-1, Outline No.1. Terminals: 1 - emitter, 2 - base, 3 - collector.

MAXIMUM RATINGS

Collector-to-Base Voltage	V_{CBO}	-34	V
Emitter-to-Base Voltage	V_{EBO}	-1.5	V
Collector Current	I_C	-10	mA
Emitter Current	I_E	10	mA
Transistor Dissipation:			
$T_A = 25^{\circ}C$	P_T	80	mW
$T_A = 55^{\circ}C$	P_T	50	mW
$T_A = 71^{\circ}C$	P_T	35	mW
Temperature Range:			
Operating (Ambient)	T_A (opr)	71	$^{\circ}C$
Storage	T_{STG}	-65 to 85	$^{\circ}C$
Lead-Soldering Temperature (10 s max)	T_L	255	$^{\circ}C$

CHARACTERISTICS

Collector-to-Base Breakdown Voltage ($I_c = -50 \mu A$, $I_E = 0$)	$V_{(BR)CBO}$	-34 min	V
Collector-Cutoff Current ($V_{CB} = -12 V$, $I_E = 0$)	I_{CBO}	-12 max	μA
Emitter-Cutoff Current ($V_{EB} = -1.5 V$, $I_C = 0$)	I_{EBO}	-15 max	μA
Small-Signal Forward-Current Transfer Ratio ($V_{CB} = -6 V$, $I_c = -1 mA$, $f = 1 kc/s$)	h_{fe}	40 to 170	
Small-Signal Forward-Current Transfer-Ratio Cutoff Frequency ($V_{CB} = -12 V$, $I_E = 1 mA$)	f_{hfb}	45	Mc/s
Output Capacitance ($V_{CE} = -12 V$, $I_c = -1 mA$, $f = 1 kc/s$)	C_{obo}	2	pF
Thermal Resistance, Junction-to-Ambient	Θ_{J-A}	0.4 max	$^{\circ}C/W$



TYPICAL OPERATION IN RF-AMPLIFIER CIRCUIT

DC Collector-to-Emitter Voltage	V_{CE}	-5.5	-11.2	V
Emitter Current	I_E	1	1	mA
Signal Frequency	f	1.5	1.5	Mc/s
Input Resistance	R_{ie}	520	1000	Ω
Output Resistance	R_{oe}	0.065	0.18	M Ω
Maximum Power Gain	MAG	40.4	47.7	dB
Useful Power Gain (Unneutralized circuit)	MUG	25.3	25.6	dB

TRANSISTOR

2N1638

Ge p-n-p drift-field type used in if-amplifier applications in AM automobile radio receivers. JEDEC TO-1, Outline No.1. Terminals: 1 - emitter, 2 - base, 3 - collector. This type is identical with type 2N1637 except for the following items:

MAXIMUM RATINGS

Emitter-to-Base Voltage	V_{EBO}	-0.5	V
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CHARACTERISTICS

Collector-Cutoff Current ($V_{CB} = -12 V$, $I_C = 0$)	I_{CBO}	-12 max	μA
Emitter-Cutoff Current ($V_{EB} = -0.5 V$, $I_C = 0$)	I_{EBO}	-12 max	μA
Small-Signal Forward-Current Transfer Ratio ($V_{CB} = -6 V$, $I_c = -1 mA$, $f = 1 kc/s$)	h_{fe}	70 to 275	
Small-Signal Forward-Current Transfer-Ratio Cutoff Frequency ($V_{CB} = -12 V$, $I_E = 1 mA$)	f_{hfb}	40	Mc/s

TYPICAL OPERATION IN SINGLE-STAGE IF-AMPLIFIER CIRCUIT

DC Collector-to-Emitter Voltage	V_{CE}	-5	-11	
Emitter Current	I_E	1.6	2	mA
Signal Frequency	f	262.6	262.5	kc/s
Input Resistance	R_{ie}	1800	1400	Ω
Output Resistance	R_{oe}	0.47	0.72	M Ω
Maximum Power Gain	MAG	58.6	61.5	dB
Useful Power Gain (Unneutralized circuit)	MUG	35	36.6	dB

2N1639**TRANSISTOR**

Ge p-n-p drift-field type used in converter, mixer, and oscillator applications in AM automobile radio receivers. JEDEC TO-1, Outline No.1. **Terminals:** 1 - emitter, 2 - base, 3 - collector. This type is identical with type 2N1637 except for the following items:

TYPICAL OPERATION IN SELF-EXCITED 1.5-Mc/s CONVERTER CIRCUIT

DC Collector-to-Emitter Voltage	V _{CE}	-5	-11	V
DC Collector Current	I _C	0.65	0.65	mA
Input Resistance	R _{ie}	1850	2200	Ω
Output Resistance	R _{oe}	0.1	0.2	MΩ
RMS Base-to-Emitter Oscillator-Injection Voltage		100	100	mV
Conversion Power Gain (useful)	MUG _C	35.4	37	dB

2N1683**COMPUTER TRANSISTOR**

Ge p-n-p diffused-junction type used in computer applications in data-processing equipment. JEDEC TO-5, Outline No.3. **Terminals:** 1 - emitter, 2 - base, 3 - collector. This type is identical with type 2N1300 except for the following items:

MAXIMUM RATINGS

Emitter-to-Base Voltage	V _{EB} *	-4	V
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CHARACTERISTICS

Emitter-to-Base Breakdown Voltage (I _E = -0.1 mA, I _C = 0)	V _{(BR)EBO}	-4 min	V
Base-to-Emitter Voltage (I _C = -40 mA, I _B = -1 mA)	V _{BE}	-0.6 max	V
Static Forward-Current Transfer Ratio:			
V _{CE} = -0.3 V, I _C = -10 mA	h _{FE}	50 min	75 typ
V _{CE} = -0.5 V, I _C = -40 mA	h _{FE}	50 min	85 typ
Gain-Bandwidth Product (V _{CE} = -3 V, I _C = -10 mA)	ft	50 min	Mc/s
Total Stored Charge:			
I _C = -10 mA, I _B = -0.4 mA	Q _S	160 max	pC
I _C = -40 mA, I _B = -1.6 mA	Q _S	410 max	pC

* This rating may be exceeded and the emitter-to-base junction operated in the breakdown condition provided the emitter dissipation is limited to 30 milliwatts at 25°C. For ambient temperatures above 25°C, reduce the dissipation by 0.5 milliwatts per °C.

2N1700**POWER TRANSISTOR**

Si n-p-n diffused-junction type used in power-switching circuits such as dc-to-dc converters, inverters, choppers, solenoid and relay controls; in oscillators, regulators, and pulse-amplifier circuits; and as class A and class B push-pull audio and servo amplifiers in industrial and military equipment. JEDEC TO-5, Outline No.3. **Terminals:** 1 - emitter, 2 - base, 3 - collector and case. For typical operation in a power-switching circuit, refer to type 2N1479.

MAXIMUM RATINGS

Collector-to-Base Voltage	V _{CBO}	60	V
Collector-to-Emitter Voltage:			
V _{BE} = -1.5 V	V _{CEV}	60	V
Base open (sustaining voltage)	V _{CEO} (sus)	40	V
Emitter-to-Base Voltage	V _{EB}	6	V
Collector Current	I _C	1	A
Base Current	I _B	0.75	A