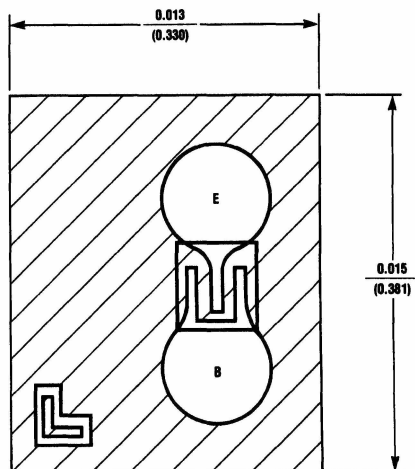




TL/G/10037-39

DESCRIPTION

Process 43 is an overlay, double-diffused, silicon epitaxial device.

APPLICATION

This device was designed for use as RF amplifiers, oscillators and multipliers with collector current in the 1 mA to 20 mA range.

PRINCIPAL DEVICE TYPES

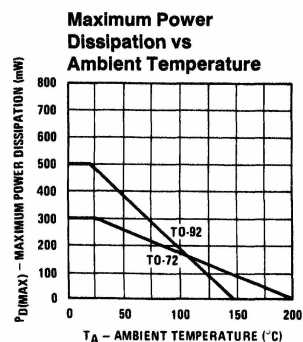
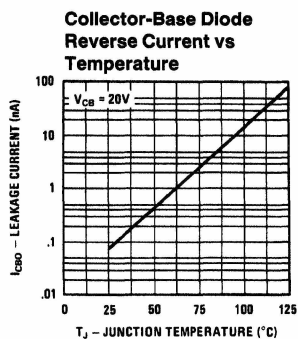
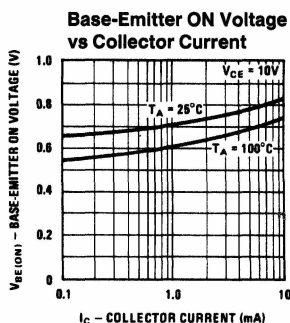
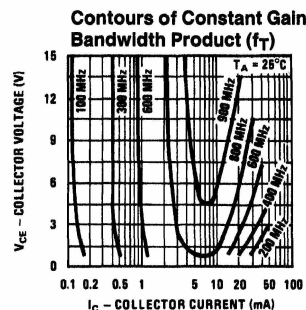
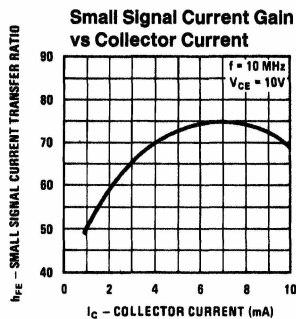
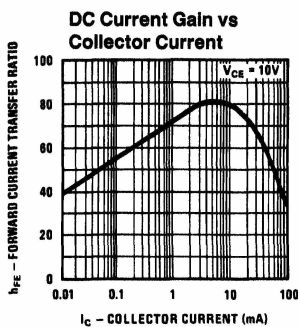
TO-72: 2N918

TO-92 EBC: PN918, PN3563, 2N5770

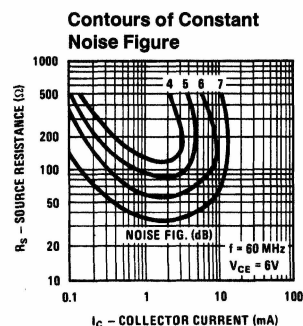
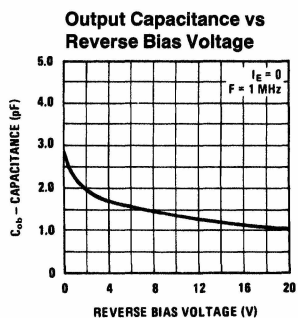
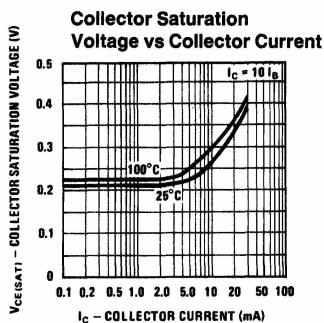
TO-236: MMBT918

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

Symbol	Conditions	Min	Typ	Max	Units
G_{PE}	$f = 200 \text{ MHz}$, $I_C = 5 \text{ mA}$, $V_{CE} = 10 \text{ V}$ (Neutralized)	14	18		dB
NF	$f = 60 \text{ MHz}$, $I_C = 1 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $R_S = 200 \Omega$		3.5	6.0	dB
PO	$f = 500 \text{ MHz}$, $I_C = 8 \text{ mA}$, $V_{CE} = 15 \text{ V}$ (Figure 1) $f = 900 \text{ MHz}$, $I_C = 8 \text{ mA}$, $V_{CE} = 15 \text{ V}$	20 3.0	35 8.0		mW
h_{fe}	$I_C = 5 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 100 \text{ MHz}$	6.0	9.0		
r_b/C_c	$f = 79.8 \text{ MHz}$, $V_{CE} = 10 \text{ V}$, $I_E = 8 \text{ mA}$		10	25	ps
C_{CB}	$V_{CB} = 10 \text{ V}$, $I_E = 0$		1.2	1.7	pF
C_{EB}	$V_{EB} = 0.5 \text{ V}$, $I_C = 0$		1.4	2.0	pF
h_{FE}	$I_C = 1 \text{ mA}$, $V_{CE} = 1 \text{ V}$ $I_C = 5 \text{ mA}$, $V_{CE} = 10 \text{ V}$ $I_C = 30 \text{ mA}$, $V_{CE} = 10 \text{ V}$	25 40 30	80	200	
$V_{CE(SAT)}$	$I_C = 10 \text{ mA}$, $I_B = 1 \text{ mA}$		0.25		V
$V_{BE(SAT)}$	$I_C = 10 \text{ mA}$, $I_B = 1 \text{ mA}$		0.9		V
BV_{CEO}	$I_C = 3 \text{ mA}$	15			V
BV_{CBO}	$I_C = 10 \mu\text{A}$	30			V
BV_{EBO}	$I_E = 10 \mu\text{A}$	4			V
I_{CBO}	$V_{CB} = 20 \text{ V}$			100	nA
I_{EBO}	$V_{CB} = 3 \text{ V}$			100	nA



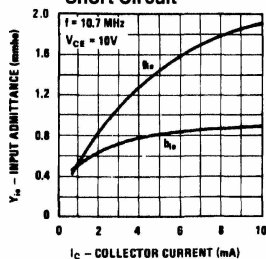
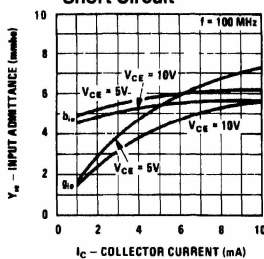
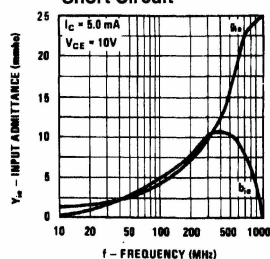
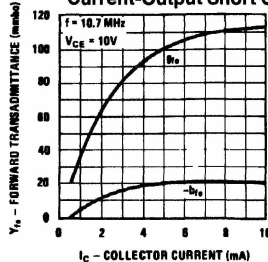
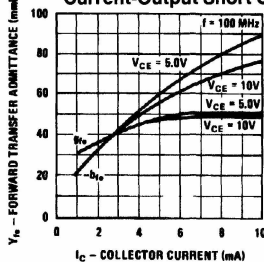
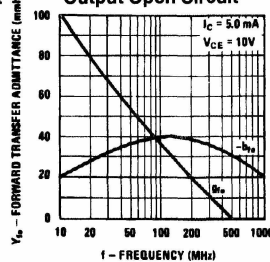
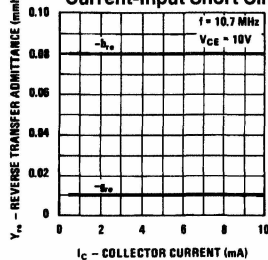
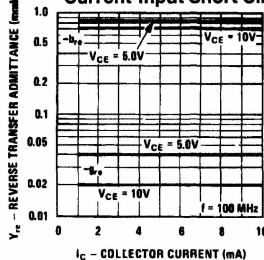
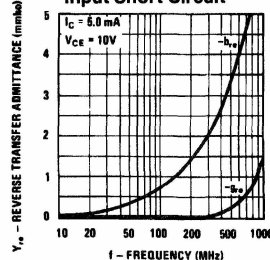
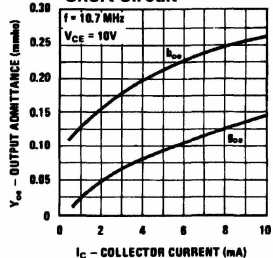
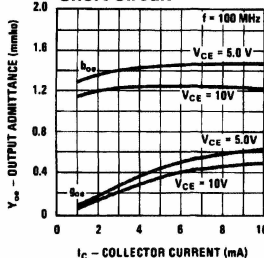
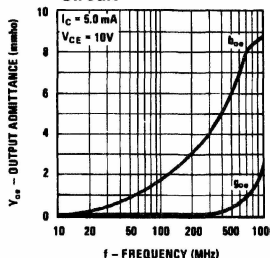
TL/G/10037-40



TL/G/10037-41

Process 43

COMMON EMITTER Y PARAMETERS VS FREQUENCY

Input Admittance vs
Collector Current-Output
Short CircuitInput Admittance vs
Collector Current-Output
Short CircuitInput Admittance vs
Frequency-Output
Short CircuitForward Transfer
Admittance vs Collector
Current-Output Short CircuitForward Transfer
Admittance vs Collector
Current-Output Short CircuitForward Transfer
Admittance vs Frequency-
Output Open CircuitReverse Transfer
Admittance vs Collector
Current-Input Short CircuitReverse Transfer
Admittance vs Collector
Current-Input Short CircuitReverse Transfer
Admittance vs Frequency-
Input Short CircuitOutput Admittance vs
Collector Current-Input
Short CircuitOutput Admittance vs
Collector Current-Input
Short CircuitOutput Admittance vs
Frequency-Input Short
Circuit

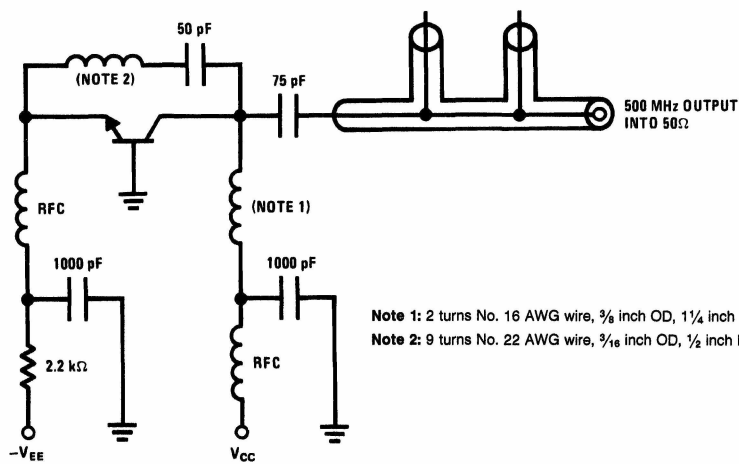


FIGURE 1. 500 MHz Oscillator Circuit

TL/G/10037-42