

MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CE0}	15		Vdc
Collector-Base Voltage	V_{CES}	30		Vdc
Emitter-Base Voltage	V_{EBO}	3.0		Vdc
Collector Current — Continuous	I_C	50		mAdc
		One Die	Both Die	
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ MD918A,B MD918AF	P_D	550 350	600 400	mW
Derate above 25°C MD918A,B MD918AF		3.14 2.0	3.42 2.28	mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ MD918A,B MD918AF	P_D	1.4 0.7	2.0 1.4	Watts
Derate above 25°C MD918A,B MD918AF		8.0 4.0	11.4 8.0	mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	One Die	All Die Equal Power	Unit
Thermal Resistance, Junction to Case MD918A,B MD918AF	$R_{\theta JC}$	125 250	87.5 125	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient MD918A,B MD918AF	$R_{\theta JA(1)}$	319 500	292 438	$^\circ\text{C/W}$
		Junction to Ambient	Junction to Case	
Coupling Factors MD918A,B MD918AF		83 75	40 0	%

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage(2) ($I_C = 3.0 \text{ mAdc}, I_B = 0$)	$V_{(BR)CEO}$	15	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 1.0 \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	30	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 15 \text{ Vdc}, I_E = 0$) ($V_{CB} = 15 \text{ Vdc}, I_E = 0, T_A = 150^\circ\text{C}$)	I_{CBO}	—	—	10 1.0	nAdc μAdc
ON CHARACTERISTICS					
DC Current Gain ($I_C = 3.0 \text{ mAdc}, V_{CE} = 5.0 \text{ Vdc}$)	h_{FE}	50	165	—	—
Collector-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ Adc}$)	$V_{CE(sat)}$	—	0.09	0.2	Vdc
Base-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$)	$V_{BE(sat)}$	—	0.86	0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product ($I_C = 4.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 100 \text{ MHz}$)	f_T	600	—	—	MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 100 \text{ kHz}$)	C_{obo}	—	1.1	1.7	pF

MOTOROLA SMALL-SIGNAL TRANSISTORS, FETs AND DIODES

3-302

MD918A
MD918B

T-31-27



CASE 654-07, STYLE 1

MD918AF

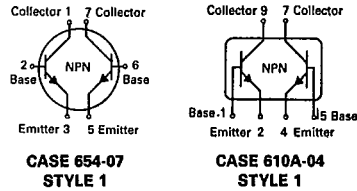


CASE 610A-04, STYLE 1

DUAL
AMPLIFIER TRANSISTORS

NPN SILICON

PIN CONNECTION DIAGRAMS



ELECTRICAL CHARACTERISTICS (continued) ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
Input Capacitance ($V_{BE} = 0.5\text{ Vdc}$, $I_C = 0$, $f = 100\text{ kHz}$)	C_{ibo}	—	1.15	2.0	pF
Noise Figure ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 6.0\text{ Vdc}$, $R_S = 400\Omega$, $f = 60\text{ MHz}$)	NF	—	—	6.0	dB

MATCHING CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
DC Current Gain Ratio(3) ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$)	h_{FE1}/h_{FE2}	0.8 0.9	—	1.0 1.0	—
Base-Emitter Voltage Differential ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$)	$ V_{BE1} - V_{BE2} $	—	—	10 5.0	mVdc
Base-Emitter Voltage Differential Gradient ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$, $T_A = -55\text{ to }+125^\circ\text{C}$)	$\frac{\Delta(V_{BE1} - V_{BE2})}{\Delta T_A}$	—	—	20 10	$\mu\text{V/dc}$ $^\circ\text{C}$

(2) Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2.0\%$.
 (3) The lowest h_{FE} reading is taken as h_{FE1} for this ratio.



FIGURE 1 - DC CURRENT GAIN

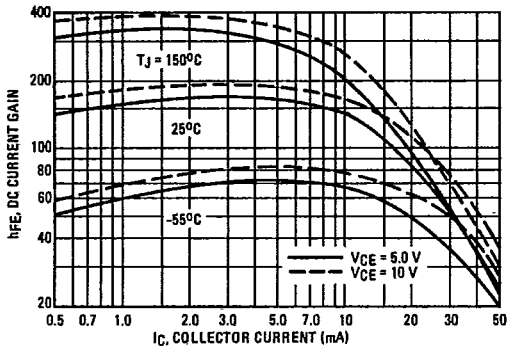


FIGURE 2 - "ON" VOLTAGES

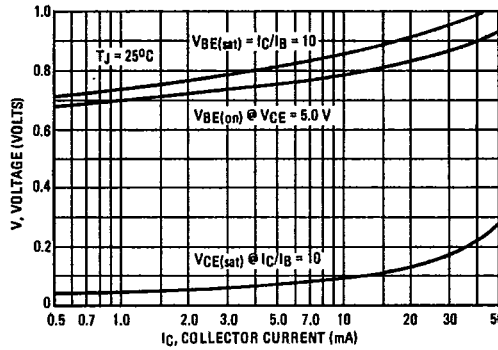


FIGURE 3 - BASE-EMITTER TEMPERATURE COEFFICIENT

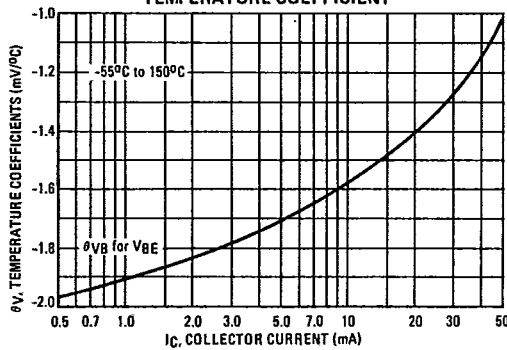
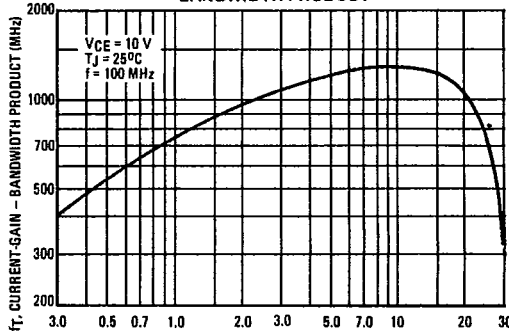
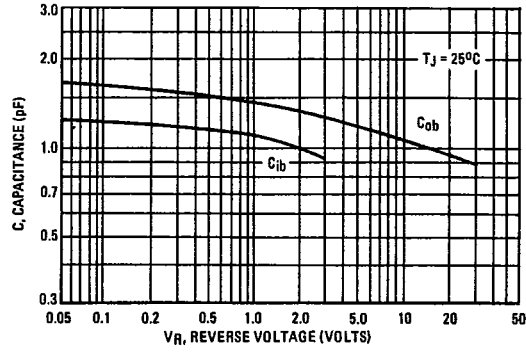


FIGURE 4 - CURRENT-GAIN BANDWIDTH PRODUCT



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FIGURE 5 - CAPACITANCE



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