

6367254 MOTOROLA SC (XSTRS/R F)

96D 82422 D

T-29-27

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	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°C MD918,A,B MD918AF Derate above 25°C	P _D	550	600
		350	400
		3.14	3.42
		2.0	2.28
			mW
Total Device Dissipation @ T _C = 25°C MD918,A,B MD918AF Derate above 25°C	P _D	1.4	2.0
		0.7	1.4
		8.0	11.4
		4.0	8.0
			Watts
			mW/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-65 to +200	°C

**MD918
MD918A
MD918B**



CASE 654-07, STYLE 1

MD918AF



CASE 610A-04, STYLE 1

**DUAL
AMPLIFIER TRANSISTOR**

NPN SILICON

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THERMAL CHARACTERISTICS

Characteristic	Symbol	One Die	All Die Equal Power	Unit
Thermal Resistance, Junction to Case MD918,A,B MD918AF	R _{θJC}	125	87.5	°C/W
		250	125	
Thermal Resistance, Junction to Ambient MD918,A,B MD918AF	R _{θJA} (1)	319	292	°C/W
		500	438	
		Junction to Ambient	Junction to Case	
Coupling Factors MD918,A,B MD918AF		83	40	%
		75	0	

(1) R_{θJA} is measured with the device soldered into a typical printed circuit board.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage(2) (I _C = 3.0 mAdc, I _B = 0)	V _{(BR)CEO}	15	—	—	Vdc
Collector-Base Breakdown Voltage (I _C = 1.0 μAdc, I _E = 0)	V _{(BR)CBO}	30	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 μAdc, I _C = 0)	V _{(BR)EBO}	3.0	—	—	Vdc
Collector Cutoff Current (V _{CB} = 15 Vdc, I _E = 0) (V _{CB} = 15 Vdc, I _E = 0, T _A = 150°C)	I _{CBO}	—	—	10	nAdc
ON CHARACTERISTICS					
DC Current Gain (I _C = 3.0 mAdc, V _{CE} = 5.0 Vdc)	h _{FE}	50	165	—	—
Collector-Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 Adc)	V _{CE(sat)}	—	0.09	0.2	Vdc
Base-Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc)	V _{BE(sat)}	—	0.86	0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I _C = 4.0 mAdc, V _{CE} = 10 Vdc, f = 100 MHz)	f _T	600	—	—	MHz
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 100 kHz)	C _{obo}	—	1.1	1.7	pF

MOTOROLA SMALL-SIGNAL SEMICONDUCTORS

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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	Part Number	Symbol	Min	Typ	Max	Unit
DC Current Gain Ratio(3) ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$)	MD918B MD918A,AF	h_{FE1}/h_{FE2}	0.8 0.9	—	1.0	—
Base-Emitter Voltage Differential ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$)	MD918B MD918A,AF	$ V_{BE1} - V_{BE2} $	—	—	10 5.0	mVdc
Base-Emitter Voltage Differential Gradient ($I_C = 1.0\text{ mAdc}$, $V_{CE} = 5.0\text{ Vdc}$, $T_A = -55\text{ to }+125^\circ\text{C}$)	MD918B,AF MD918A	$\frac{\Delta(V_{BE1} - V_{BE2})}{\Delta T_A}$	—	—	20 10	$\mu\text{V}/\text{dc}$ $^\circ\text{C}$

(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

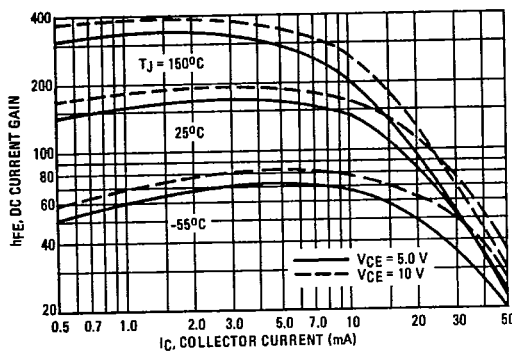


FIGURE 2 - "ON" VOLTAGES

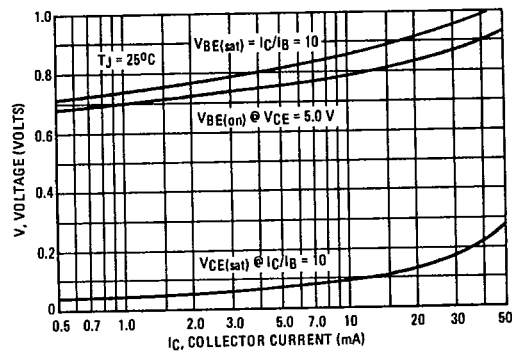


FIGURE 3 - BASE-EMITTER TEMPERATURE COEFFICIENT

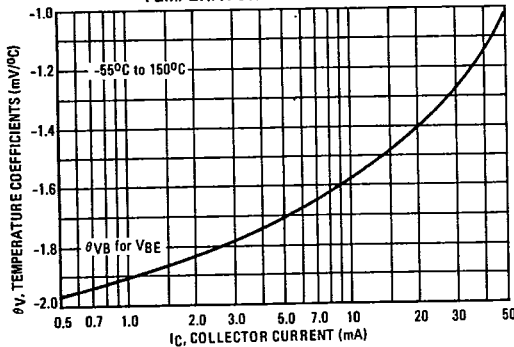
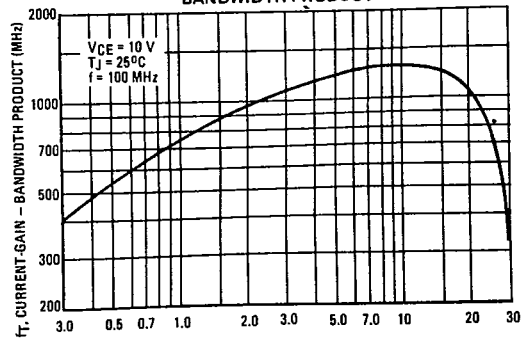


FIGURE 4 - CURRENT-GAIN BANDWIDTH PRODUCT



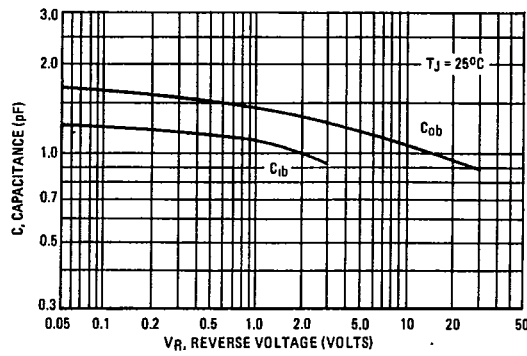
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FIGURE 5 - CAPACITANCE



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