

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 MD918,A,B MD918AF	P _D	550 350 3.14 2.0	600 400 3.42 2.28 mW mW/°C
Total Device Dissipation @ T _C = 25°C MD918,A,B MD918AF Derate above 25°C MD918,A,B MD918AF	P _D	1.4 0.7 8.0 4.0	2.0 1.4 11.4 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}	125 250	87.5 125	°C/W
Thermal Resistance, Junction to Ambient MD918,A,B MD918AF	R _{θJA} (1)	319 500	292 438	°C/W
		Junction to Ambient	Junction to Case	
Coupling Factors MD918,A,B MD918AF		83 75	40 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 mA, I _B = 0)	V _{(BR)CEO}	15	—	—	Vdc
Collector-Base Breakdown Voltage (I _C = 1.0 μA, I _E = 0)	V _{(BR)CBO}	30	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 μA, 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 1.0	nAdc μAdc
ON CHARACTERISTICS					
DC Current Gain (I _C = 3.0 mA, V _{CE} = 5.0 Vdc)	h _{FE}	50	165	—	—
Collector-Emitter Saturation Voltage (I _C = 10 mA, I _B = 1.0 mA)	V _{CE(sat)}	—	0.09	0.2	Vdc
Base-Emitter Saturation Voltage (I _C = 10 mA, I _B = 1.0 mA)	V _{BE(sat)}	—	0.86	0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I _C = 4.0 mA, 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°C unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit	
Input Capacitance (V _{BE} = 0.5 Vdc, I _C = 0, f = 100 kHz)	C _{ibo}	—	1.15	2.0	pF	
Noise Figure (I _C = 1.0 mAdc, V _{CE} = 6.0 Vdc, R _S = 400Ω, f = 60 MHz)	NF	—	—	6.0	dB	
MATCHING CHARACTERISTICS						
DC Current Gain Ratio(3) (I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc)	MD918B MD918A,AF	h _{FE1} /h _{FE2}	0.8 0.9	— —	1.0 1.0	—
Base-Emitter Voltage Differential (I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc)	MD918B MD918A,AF	V _{BE1} -V _{BE2}	— —	— —	10 5.0	mVdc
Base-Emitter Voltage Differential Gradient (I _C = 1.0 mAdc, V _{CE} = 5.0 Vdc, T _A = -55 to +125°C)	MD918B,AF MD918A	$\frac{\Delta(V_{BE1}-V_{BE2})}{\Delta T_A}$	— —	— —	20 10	μV/dc °C

(2) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.
 (3) The lowest h_{FE} reading is taken as h_{FE1} for this ratio.



FIGURE 1 - DC CURRENT GAIN

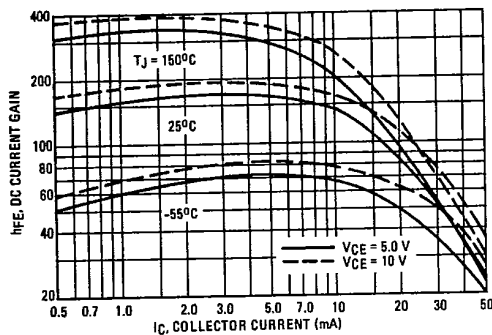


FIGURE 2 - "ON" VOLTAGES

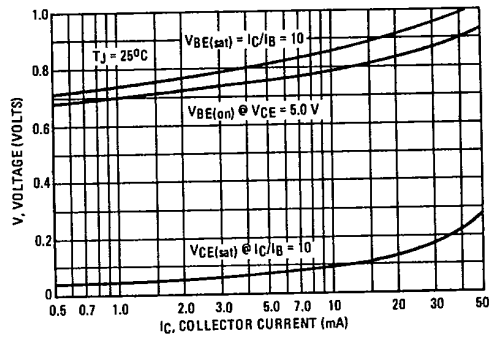


FIGURE 3 - BASE-EMITTER TEMPERATURE COEFFICIENT

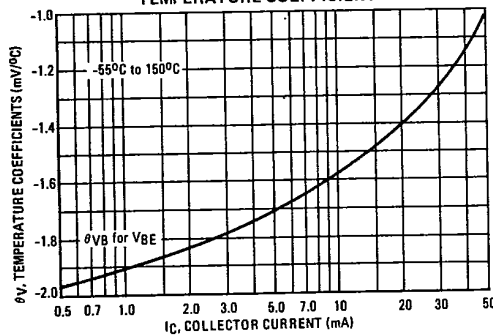
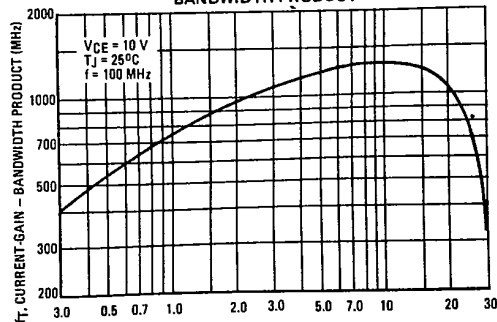


FIGURE 4 - CURRENT-GAIN BANDWIDTH PRODUCT



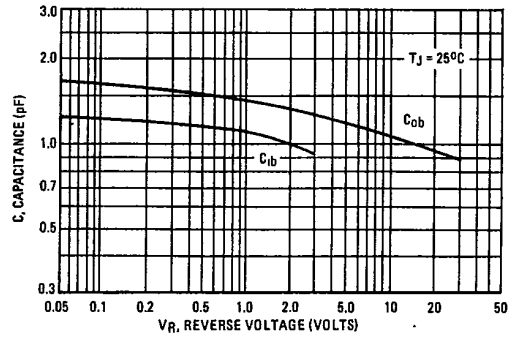
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FIGURE 5 - CAPACITANCE



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