Silicon Dual NPN Transistor

MD918BF

High Frequency Transistor

30V / 50mA

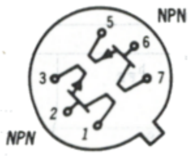
DATASHEET

OEM –Motorola

Source: Motorola Databook 1972

MD918, F (SILICON)
MD918A, F
MD918B, F

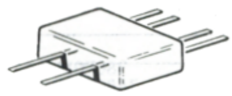
Dual NPN silicon annular transistors designed for ultra-high frequency oscillator and amplifier applications and for differential amplifier applications requiring a matched pair of transistors with a high degree of parameter uniformity under varying environmental conditions.

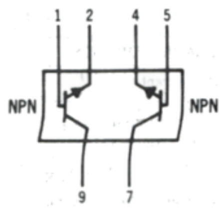


CASE 654-04

PINS 4 AND 8 OMITTED

MD918
MD918A
MD918B





CASE 610-02

MD918F
MD918AF
MD918BF

Pin Connections, Bottom View
All Leads Electrically Isolated from Case

MAXIMUM RATINGS (each side) (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CEO}	15		Vdc
Collector-Base Voltage	V_{CB}	30		Vdc
Emitter-Base Voltage	V_{EB}	5.0		Vdc
Collector Current	I_C	50		mAdc
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C
		One Side	Both Sides	
Total Device Dissipation @ T_A = 25°C	P_D			
Metal Can Derate above 25°C		300 1.7	400 2.3	mW mW/°C
Flat Package Derate above 25°C		250 1.5	350 2.0	mW mW/°C

MD918,F/MD918A,F/MD918B,F (continued)

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = 3 mAdc, I_B = 0)	BV_{CEO}	15	—	Vdc
Collector-Base Breakdown Voltage (I_C = 1 μAdc, I_E = 0)	BV_{CBO}	30	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	BV_{EBO}	5.0	—	Vdc
Collector Cutoff Current (V_{CB} = 15 Vdc, I_E = 0)	I_{CBO}	—	0.010	μAdc
(V_{CB} = 15 Vdc, I_E = 0, T_A = 150°C)		—	1.0	
ON CHARACTERISTICS				
DC Current Gain (I_C = 1 mAdc, V_{CE} = 5 Vdc)	h_{FE}	50	—	—
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1 mAdc)	$V_{CE(sat)}$	—	0.2	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1 mAdc)	$V_{BE(sat)}$	—	0.9	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain—Bandwidth Product (I_C = 4 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	600	—	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 140 kHz)	C_{ob}	—	1.7	pF
(V_{CB} = 0, I_E = 0, f = 140 kHz)		—	3.0	
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 140 kHz)	C_{ib}	—	2.0	pF
Noise Figure (I_C = 1 mAdc, V_{CE} = 6 Vdc, f = 60 MHz, R_S = 400 ohms)	NF	—	6.0	dB
MATCHING CHARACTERISTICS				
DC Current Gain Ratio* (I_C = 1 mAdc, V_{CE} = 5 Vdc) MD918A, MD918AF	h_{FE1}/h_{FE2}*	0.9	1.0	—
MD918B, MD918BF		0.8	1.0	
Base Voltage Differential (I_C = 1 mAdc, V_{CE} = 5 Vdc) MD918A, MD918AF	$\lvert V_{BE1} - V_{BE2} \rvert$	—	5.0	mVdc
MD918B, MD918BF		—	10	
Base Voltage Differential Change (I_C = 1 mAdc, V_{CE} = 5 Vdc, T_A = -55 to +125°C) MD918A, MD918AF	$\frac{\Delta(V_{BE1} - V_{BE2})}{\Delta T_A}$	—	10	μV/°C
MD918B, MD918BF		—	20	

*The lowest h_{FE} reading is taken as h_{FE1} for this ratio.