MD918HX, HXV (DUAL)
MD918FHXV (DUAL)
MHQ918HX, HXV (QUAD)
MQ918HXV (QUAD)

CRYSTALONICS
2805 Veterans Highway
Suite 14
Ronkonkoma, N.Y. 11779

NPN Silicon Dual/Quad Small-Signal Transistors

. . . designed for high-frequency amplifier applications.

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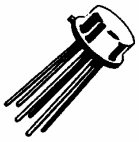
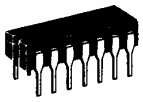
MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CEO}	15		Vdc
Collector-Base Voltage	V_{CBO}	30		Vdc
Emitter-Base Voltage	V_{EBO}	3.0		Vdc
Collector Current — Continuous	I_C	50		mAdc
		One Die	All Die Equal Power	
Device Dissipation	P_T			Watts
@ T_A = 25°C				
MD918		0.55	0.6	
MD918F		0.35	0.4	
MHQ918		0.5	1.6	
MQ918		0.35	0.4	
Derate above 25°C				mW/°C
MD918		3.14	3.42	
MD918F		2.0	2.28	
MHQ918		2.86	8.58	
MQ918		2.0	2.28	
@ T_C = 25°C				Watts
MD918		1.4	2.0	
MD918F		0.7	1.4	
MHQ918		1.3	4.6	
MQ918		0.7	1.4	
Derate above 25°C				mW/°C
MD918		8.0	11.4	
MD918F		4.0	8.0	
MHQ918		7.43	26.3	
MQ918		4.0	8.0	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	−65 to 200		°C

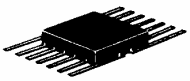


MD918
CASE 654-07
(TO-78)

MD918F
CASE 610A-04



MHQ918
CASE 632-08
(TO-116)



MQ918
CASE 607-04

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)				
Characteristic	**Symbol**	**Min**	**Max**	**Unit**
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) (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} = 25 Vdc, I_E = 0) (V_{CB} = 25 Vdc, I_E = 0, T_A = 150°C)	I_{CBO}	— —	10 1.0	nAdc μAdc
Emitter Cutoff Current (V_{EB} = 2.5 Vdc)	I_{EBO}	—	10	nAdc
ON CHARACTERISTICS				
DC Current Gain (I_C = 500 μAdc, V_{CE} = 10 Vdc) (I_C = 3.0 mAdc, V_{CE} = 10 Vdc)(1) (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc, T_A = −55°C)	h_{FE}	 10 20 20 10	 — 200 — —	—
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{CE(sat)}$	—	0.4	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{BE(sat)}$	—	1.0	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 0.1 to 1.0 MHz) (V_{CB} = 0 Vdc, I_E = 0, f = 0.1 to 1.0 MHz)	C_{obo}	— —	1.7 3.0	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 0.1 to 1.0 kHz)	C_{ibo}	—	2.0	pF
Small-Signal Transfer Current Ratio, Magnitude (I_C = 4.0 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	$\|h_{fe}\|$	6.0	18	—
Noise Figure (I_C = 1.0 mAdc, V_{CE} = 6.0 Vdc, f = 60 MHz, R_S = 400 ohms)	NF	—	6.0	dB
OUTPUT CHARACTERISTICS				
Power Gain (V_{CB} = 12 Vdc, I_C = 6.0 mAdc, f = 200 MHz)	G_{pe}	15	—	dB
Power Output (V_{CB} = 15 Vdc, I_C = 8.0 mAdc, f = 500 MHz)	P_o	30	—	mW
Efficiency (V_{CB} = 15 Vdc, I_C = 8.0 mAdc, f = 500 MHz)	η	25	—	%

(1) Pulsed. Pulse Width 300 ≤ μs. Duty Cycle 2.0%.

ASSURANCE TESTING (Pre/Post Burn-In)				
		Initial and End Point Limits		
Characteristics Tested	**Symbol**	**Min**	**Max**	**Unit**
Collector Cutoff Current (V_{CB} = 25 Vdc)	I_{CBO}	—	10	nAdc
DC Current Gain(1) (I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc)	h_{FE}	20	200	—

Delta from Pre-Burn-In Measured Values		**Min**	**Max**	
Delta Collector Cutoff Current	ΔI_{CBO}	—	±100 or ±5.0 whichever is greater	% of Initial Value nAdc
Delta DC Current Gain(1)	Δh_{FE}	—	±20	% of Initial Value

(1) Pulsed. Pulse Width 300 ≤ μs. Duty Cycle 2.0%.