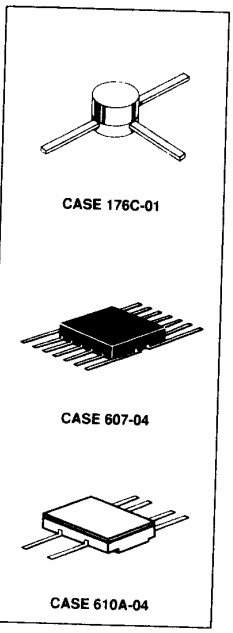
MMCM918HXV/HS (SINGLE)
MD918FHXV/HS (DUAL)
MD918AFHXV/HS (DUAL)
MQ918HXV/HS (QUAD)

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

Surface Mountable
Small-Signal Transistor
30 Volt, 50 Milliampere Bipolar NPN Silicon



CASE 176C-01

CASE 607-04

CASE 610A-04

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	
Device Dissipation @ T_A = 25°C	P_T			mW
MMCM918		200	—	
MD918F,AF		350	400	
MQ918		350	400	
Derate above 25°C				mW/°C
MMCM918		1.14	—	
MD918F,AF		2.0	2.28	
MQ918		2.0	2.28	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +200		°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless noted)

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage (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
DC Current Gain (I_C = 500 μAdc, V_{CE} = 10 Vdc) (I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc) (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
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 MHz)	C_{ibo}	—	2.0	pF
Transfer Current Ratio, Magnitude (I_C = 4.0 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	$\lvert h_{fe} \rvert$	6.0	18	—
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	—	%
Noise Figure (I_C = 1.0 mAdc, V_{CE} = 6.0 Vdc, f = 60 MHz, RS = 400)	NF	—	6.0	dB
MATCHING CHARACTERISTICS (MD918AF only)				
DC Current Gain Ratio (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc)	h_{FE1}/h_{FE2}	0.9	1.0	—
Base-Emitter Voltage Differential (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc)	$\lvert V_{BE1} - V_{BE2} \rvert$	—	5.0	mVdc
Base-Emitter Voltage Differential Gradient (I_C = 1.0 mAdc, V_{CE} = 5.0 Vdc, T_A = −55 to +125°C)	$\frac{\Delta(V_{BE1} - V_{BE2})}{\Delta T_A}$	—	10	$\frac{\mu Vdc}{°C}$

ASSURANCE TESTING (Pre/Post Burn-In)
Burn-In Test Conditions: T_A = 25 ±3°C, V_{CB} = 10 Vdc, P_T = Rated Power

Characteristics Tested	Symbol	Min	Max	Unit
Collector Cutoff Current (V_{CB} = 25 Vdc)	I_{CBO}	—	10	nAdc
DC Current Gain (I_C = 3.0 mAdc, V_{CE} = 1.0 Vdc)	h_{FE}	20	200	—

Delta from Pre-Burn-In Measured Values			
Delta Collector Cutoff Current	ΔI_{CBO}	100 or 5.0 whichever is greater	% Initial nAdc
Delta DC Current Gain	Δh_{FE}	±20	% Initial