

**MD2484FHXV (DUAL)
MHQ2484HX, HXV (QUAD)
MQ2484HXV (QUAD)**

CRYSTALONCS
2805 Veterans Highway
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**NPN Silicon Dual/Quad
Small-Signal Transistors**

... designed for general-purpose amplifier applications.

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MAXIMUM RATINGS				
Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V _{CEO}	60		V _{dc}
Collector-Base Voltage	V _{CBO}	60		V _{dc}
Emitter-Base Voltage	V _{EB0}	6.0		V _{dc}
Collector Current — Continuous	I _C	50		mAdc
		One Die	All Die Equal Power	
Device Dissipation @ T _A = 25°C	P _T			Watts
MD2484F		0.35	0.4	
MHQ2484		0.6	1.8	
MQ2484		0.4	0.6	
Derate above 25°C				mW/°C
MD2484F		2.0	2.28	
MHQ2484		3.42	10.3	
MQ2484		2.28	3.42	
@ T _C = 25°C				Watts
MD2484F		1.0	2.0	
MHQ2484		1.2	4.2	
MQ2484		0.9	3.6	
Derate above 25°C				mW/°C
MD2484F		5.7	11.4	
MHQ2484		6.85	24	
MQ2484		5.13	20.5	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-65 to 200		°C



MD2484F
CASE 610A-04



MHQ2484
CASE 632-08
(TO-116)



MQ2484
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 = 10 mA, I _B = 0)	V _{(BR)CEO}	60	—	Vdc
Collector-Base Breakdown Voltage (I _C = 10 μA, I _E = 0)	V _{(BR)CBO}	60	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 μA, I _C = 0)	V _{(BR)EBO}	6.0	—	Vdc
Collector Cutoff Current (V _{CB} = 45 Vdc, I _E = 0) (V _{CB} = 45 Vdc, I _E = 0, T _A = 150°C)	I _{CBO}	— —	0.005 10	μAdc
Collector Cutoff Current (V _{CE} = 5.0 Vdc, I _E = 0)	I _{CEO}	—	0.002	μAdc
Collector Cutoff Current (V _{CE} = 45 Vdc, I _E = 0)	I _{CES}	—	0.005	μAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc, I _C = 0)	I _{EBO}	—	0.002	μAdc
ON CHARACTERISTICS				
DC Current Gain ⁽¹⁾ (I _C = 1.0 μAdc, V _{CE} = 5.0 Vdc) (I _C = 10 μAdc, V _{CE} = 5.0 Vdc) (I _C = 100 μAdc, V _{CE} = 5.0 Vdc) (I _C = 100 μAdc, V _{CE} = 5.0 Vdc) (I _C = 500 μAdc, V _{CE} = 5.0 Vdc) (I _C = 1.0 mA, V _{CE} = 5.0 Vdc) (I _C = 10 mA, V _{CE} = 5.0 Vdc) (I _C = 10 μAdc, V _{CE} = 5.0 Vdc, T _A = -55°C)	h _{FE}	45 200 225 250 250 225 35	— 500 675 800 800 800 —	—
Collector-Emitter Voltage (I _C = 1.0 mA, I _B = 0.1 mA)	V _{CE(sat)}	—	0.3	Vdc
Base-Emitter Saturation Voltage (I _C = 0.1 mA, V _{CE} = 5.0 Vdc)	V _{BE}	0.5	0.7	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Collector-Base Capacitance (V _{CB} = 5.0 Vdc, I _E = 0, f = 0.1 to 1.0 MHz)	C _{obo}	—	5.0	pF
Input Capacitance (V _{BE} = 0.5 Vdc, I _C = 0, f = 0.1 to 1.0 MHz)	C _{ibo}	—	6.0	pF
DC Current Gain (I _C = 1.0 mA, V _{CE} = 5.0 Vdc, f = 1.0 kHz)	h _{fe}	250	900	—
Small-Signal Current Transfer Ratio, Magnitude (I _C = 50 μAdc, V _{CE} = 5.0 Vdc, f = 5.0 MHz) (I _C = 500 μAdc, V _{CE} = 5.0 Vdc, f = 30 MHz)	h _{fe}	3.0 2.0	— 7.0	—
Input Impedance (I _C = 1.0 mA, V _{CE} = 5.0 Vdc, f = 0.1 to 1.0 kHz)	h _{ie}	3.5	24	kohms
Voltage Feedback Ratio (I _C = 1.0 mA, V _{CE} = 5.0 Vdc, f = 1.0 kHz)	h _{re}	0	8.0	X 10 ⁻⁴
Output Admittance (I _C = 1.0 mA, V _{CE} = 5.0 Vdc, f = 1.0 kHz)	h _{oe}	0	40	μohms

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

Characteristic	Symbol	Min	Max	Unit
SMALL-SIGNAL CHARACTERISTICS (continued)				
Noise Figure, R _G = 10 kohm (I _C = 10 μAdc, V _{CE} = 5.0 Vdc, f = 100 Hz) (I _C = 10 μAdc, V _{CE} = 5.0 Vdc, f = 1.0 kHz) (I _C = 10 μAdc, V _{CE} = 5.0 Vdc, f = 10 kHz) (I _C = 10 μAdc, V _{CE} = 5.0 Vdc, f = 10 Hz to 15.7 kHz)	NF	— — — —	7.5 3.0 2.0 3.0	dB

ASSURANCE TESTING (Pre/Post Burn-In)

Characteristics Tested	Symbol	Initial and End Point Limits		Unit
		Min	Max	
Collector Cutoff Current (V _{CB} = 45 Vdc)	I _{CBO}	—	5.0	μAdc
DC Current Gain ⁽¹⁾ (I _C = 500 μAdc, V _{CE} = 5.0 Vdc)	h _{FE}	250	800	—

Delta from Pre-Burn-In Measured Values		Min	Max	
Delta Collector Cutoff Current	ΔI _{CBO}	—	±100 or ±2.0 whichever is greater	% of Initial Value nAdc
Delta DC Current Gain ⁽¹⁾	Δh _{FE}	—	±25	% of Initial Value

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