MD3468HX, HXV (DUAL)
MD3468FHXV (DUAL)
MHQ3468HX, HXV (QUAD)
MQ3468HXV (QUAD)

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

PNP Silicon Dual/Quad Small-Signal Transistors

. . .designed for general-purpose amplifier and switching applications. Matched devices for DC current gain, base-emitter saturation voltage, and tracking over military temperature range.

3

MAXIMUM RATINGS

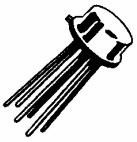
Rating		Symbol	Value		Unit
Collector-Emitter Voltage		V_{CEO}	50		Vdc
Collector-Base Voltage		V_{CBO}	50		Vdc
Emitter-Base Voltage		V_{EBO}	5.0		Vdc
Collector Current — Continuous		I_C	1.0		Adc
			Each Transistor	Total Device	
Device Dissipation @ T_A = 25°C	MD3468	P_T	0.6	0.65	Watts
	MD3468F		0.35	0.4	
	MHQ3468		0.75	2.0	
	MQ3468		0.4	0.6	
Derate above 25°C	MD3468		3.42	3.7	mW/°C
	MD3468F		2.0	2.28	
	MHQ3468		4.3	11.4	
	MQ3468		2.28	3.42	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	−65 to 200		°C

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage[1] (I_C = 10 mAdc, I_B = 0)	$V_{(BR)CEO}$	50	—	Vdc
Collector-Emitter Breakdown Voltage (I_C = 10 Adc, I_E = 0)	$V_{(BR)CES}$	50	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 Adc, I_C = 0)	$V_{(BR)EBO}$	5.0	—	Vdc
Collector-Emitter Current (V_{CE} = 30 Vdc, V_{EB} = 3.0)	I_{CEX}	—	100	nAdc
Collector-Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	I_{CBO}	—	0.1	µAdc
(V_{CB} = 30 Vdc, I_E = 0, T_A = 100°C)		—	50	

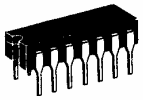
(1) Pulsed Pulse Width = 300 µs, Duty Cycle 2.0%.

(continued)

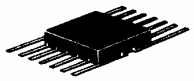


MD3468
CASE 654-07
(TO-78)

MD3468F
CASE 610-04



MHQ3468
CASE 632-08
(TO-116)



MQ3468
CASE 607-04

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

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Cutoff(1) (I_C = 150 mAdc, V_{CE} = 1.0 Vdc) (I_C = 500 mAdc, V_{CE} = 1.0 Vdc) (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc) (I_C = 150 mAdc, V_{CE} = 1.0 V, T_A = −55°C)	h_{FE}	 25 25 25 10	 — 75 — —	—
Collector-Emitter Saturation Voltage(1) (I_C = 150 mAdc, I_B = 15 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1.0 mAdc, I_B = 100 mAdc)	$V_{CE(sat)}$	 — — —	 0.35 0.6 1.2	Vdc
Base-Emitter Saturation Voltage(1) (I_C = 150 mAdc, I_B = 150 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1.0 mAdc, I_B = 100 mAdc)	$V_{BE(sat)}$	 — 0.8 —	 1.0 1.2 1.6	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz to 1.0 MHz)	C_{obo}	—	25	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz to 1.0 MHz)	C_{ibo}	—	100	pF
Current-Gain — Bandwidth Product (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	150	500	MHz
SWITCHING CHARACTERISTICS (V_{CC} = 30 V)				
Delay Time (I_C = 500 mAdc, I_{B1} = 50 mAdc, V_{BE} = 2.0 V)	t_d	—	10	ns
Rise Time (I_C = 500 mAdc, I_{B1} = 50 mAdc, V_{BE} = 2.0 V)	t_r	—	30	ns
Storage Time (I_C = 500 mAdc, I_B = 50 mAdc)	t_s	—	60	ns
Fall Time (I_C = 500 mAdc, I_B = 50 mAdc)	t_f	—	30	ns

ASSURANCE TESTING (Pre/Post Burn-In)

Characteristics Tested	Symbol	Initial and End Point Limits		Unit
		Min	Max	
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	I_{CBO}	—	100	nAdc
DC Current Gain(1) (I_C = 500 mAdc, V_{CE} = 1.0 Vdc)	h_{FE}	25	75	—

Delta from Pre-Burn-In Measured Values		Min	Max	
Delta Collector Cutoff Current	ΔI_{CBO}	—	±100 or ±50 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%