

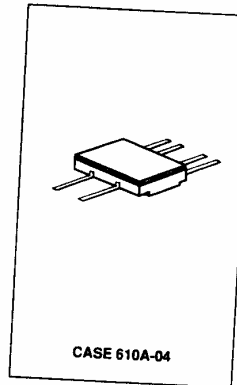
MD2219AFHXV

NPN Silicon Dual Small-Signal Transistors

... designed for general-purpose switching and amplifier applications.

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

MAXIMUM RATINGS				
Rating	Symbol	Value	Unit	
Collector-Emitter Voltage	V_{CE0}	50	Vdc	
Collector-Base Voltage	V_{CBO}	75	Vdc	
Emitter-Base Voltage	V_{EBO}	6.0	Vdc	
Collector Current — Continuous	I_C	800	mAdc	
Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_T	One Die	All Die Equal Power	
		350	400	mW
		2.0	2.28	mW/ $^\circ\text{C}$
		1.0	2.0	mW
		5.71	11.4	mW/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-65 to 200	$^\circ\text{C}$	



ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)				
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) ($I_C = 10\text{ mAdc}, I_B = 0$)	$V_{(BR)CEO}$	50	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 10\text{ }\mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	75	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10\text{ }\mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	6.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 60\text{ Vdc}$) ($V_{CB} = 60\text{ Vdc}, T_A = 150^\circ\text{C}$)	I_{CBO}	—	10	nAdc
Collector Cutoff Current ($V_{CB} = 50\text{ Vdc}$)	I_{CES}	—	10	μAdc
Base Cutoff Current ($V_{EB} = 4.0\text{ Vdc}$)	I_{EBO}	—	10	nAdc

(1) Pulsed Pulse Width 250 to 350 μs , Duty Cycle 1.0 to 2.0%

(continued)

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ELECTRICAL CHARACTERISTICS — continued (T _A = 25°C unless otherwise noted.)				
Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain ⁽¹⁾ (I _C = 100 µAdc, V _{CE} = 10 Vdc) (I _C = 1.0 mAdc, V _{CE} = 10 Vdc) (I _C = 10 mAdc, V _{CE} = 10 Vdc) (I _C = 150 mAdc, V _{CE} = 1.0 Vdc) (I _C = 500 mAdc, V _{CE} = 10 Vdc) (I _C = 10 mAdc, V _{CE} = 10 Vdc, T _A = -55°C)	h _{FE}	55 75 100 100 30 35	— 325 — 300 — —	—
Collector-Emitter Saturation Voltage ⁽¹⁾ (I _C = 150 mAdc, I _B = 15 mAdc) (I _C = 500 mAdc, I _B = 50 mAdc)	V _{CE(sat)}	— —	0.3 1.0	Vdc
Base-Emitter Saturation Voltage (I _C = 150 mAdc, I _B = 15 mAdc) (I _C = 500 mAdc, I _B = 50 mAdc)	V _{BE(sat)}	0.6 —	1.2 2.0	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current Gain (V _{CE} = 10 Vdc, I _C = 1.0 mAdc, f = 1.0 kHz)	h _{fe}	75	—	—
Small-Signal Current Transfer Ratio, Magnitude (V _{CE} = 20 Vdc, I _C = 20 mAdc, f = 100 MHz)	h _{fe}	2.5	12	—
Output Capacitance (V _{CB} = 10 Vdc, f = 0.1 to 1.0 MHz)	C _{obo}	—	8.0	pF
Input Capacitance (V _{BE} = 0.5 Vdc, I _C = 0, f = 0.1 to 1.0 MHz)	C _{ibo}	—	25	pF
SWITCHING CHARACTERISTICS (V _{CC} = 30 Vdc, I _C = 150 mA, I _B = 15 mA, D.C. = 2.0%)				
Turn-On Time	t _{on}	—	35	ns
Turn-Off Time	t _{off}	—	300	ns

ASSURANCE TESTING (Pre/Post Burn-In)				
Characteristics Tested	Symbol	Initial and End Point Limits		Unit
		Min	Max	
Collector Cutoff Current (V _{CB} = 60 Vdc)	I _{CBO}	—	10	nAdc
DC Current Gain ⁽¹⁾ (I _C = 150 mAdc, V _{CE} = 10 Vdc)	h _{FE}	100	300	—

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}	—	±15	% of Initial Value

⁽¹⁾ Pulsed. Pulse Width: 250 to 350 µs. Duty Cycle: 1.0 to 2.0%