Microsemi LAWRENCE

TECHNICAL DATA

PNP SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/323

Devices		*Qualified Level*
2N3250A	**2N3251A**	**JAN JANTX JANTXV**

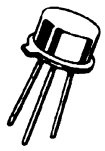
MAXIMUM RATINGS

Ratings	Symbol	Value	Units
Collector-Emitter Voltage	V_{CEO}	60	Vdc
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current	I_C	200	mAdc
Total Power Dissipation @ $T_A = +25^0C$ (1) @ $T_C = +25^0C$ (2)	P_T	0.36 1.2	W W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +175	^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$ (1)(2)	417	$^0C/W$

1) Derate linearly 2.4 W/^{0}C for $T_A > +25^0C$
2) Derate linearly 8.0 W/^{0}C for $T_C > +25^0C$



TO-39*
(TO-205AD)

*See appendix A for package outline

ELECTRICAL CHARACTERISTICS ($T_A = 25^0C$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage I_C = 10 mAdc	$V_{(BR)CEO}$	60		Vdc
Collector-Emitter Cutoff Voltage V_{BE} = 3.0 Vdc, V_{CE} = 40 Vdc	I_{CEX}		20	ηAdc
Collector-Base Cutoff Current V_{CB} = 60 Vdc V_{CB} = 40 Vdc	I_{CBO}		10 20	μAdc ηAdc
Emitter-Base Cutoff Current V_{EB} = 5.0 Vdc	I_{EBO}		10	μAdc
Collector-Emitter Cutoff Voltage V_{BE} = 3.0 Vdc, V_{CE} = 40 Vdc	I_{CEX}		50	ηAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics		Symbol	Min.	Max.	Unit
ON CHARACTERISTICS [3]					
Forward-Current Transfer Ratio					
I_C = 0.1 mAdc, V_{CE} = 1.0 Vdc	2N3250A	h_{FE}	40		
	2N3251A		80		
I_C = 1.0 mAdc, V_{CE} = 1.0 Vdc	2N3250A		45		
	2N3251A		90		
I_C = 10 mAdc, V_{CE} = 1.0 Vdc	2N3250A		50	150	
	2N3251A		100	300	
I_C = 50 mAdc, V_{CE} = 1.0 Vdc	2N3250A		15		
	2N3251A		30		
Collector-Emitter Saturation Voltage					
I_C = 10 mAdc, I_B = 1.0 mAdc		$V_{CE(sat)}$		0.25	
I_C = 50 mAdc, I_B = 5.0 mAdc				0.50	Vdc
Base-Emitter Voltage					
I_C = 10 mAdc, I_B = 1.0 mAdc		$V_{BE(sat)}$	0.60	0.90	Vdc
I_C = 50 mAdc, I_B = 5.0 mAdc				1.20	
DYNAMIC CHARACTERISTICS					
Small-Signal Short-Circuit Forward Current Transfer Ratio					
I_C = 1.0 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz	2N3250A	h_{fe}	50	200	
	2N3251A		100	400	
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio		$\lvert h_{fe} \rvert$			
I_C = 10 mAdc, V_{CE} = 20 Vdc, f = 100 MHz	2N3250A		2.5	9.0	
	2N3251A		3.0	9.0	
Output Capacitance					
V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz		C_{obo}		6.0	pF
Input Capacitance					
V_{EB} = 1.0 Vdc, I_C = 0, 100 kHz ≤ f ≤ 1.0 MHz		C_{ibo}		8.0	pF
SWITCHING CHARACTERISTICS					
Turn-On Time					
V_{CC} = 3.0 Vdc; I_C = 10 mAdc; I_{B1} = 1.0 mAdc		t_{on}		70	ηs
Turn-Off Time					
V_{CC} = 3.0 Vdc; I_C = 10 mAdc; I_{B1} = I_{B2} = 1.0 mAdc					
	2N3250A	t_{off}		250	ηs
	2N3251A			300	

(3) Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2.0%.