Microsemi LAWRENCE

TECHNICAL DATA

PNP HIGH VOLTAGE SILICON TRANSISTOR

Qualified per MIL-PRF-19500/397

Devices			*Qualified Level*
2N3743	**2N4930**	**2N4931**	**JAN, JANTX JANTXV**

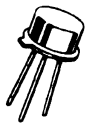
MAXIMUM RATINGS

Ratings	Sym	2N3743	2N4930	2N4931	Unit
Collector-Emitter Voltage	V_{CEO}	300	200	250	Vdc
Collector-Base Voltage	V_{CBO}	300	200	250	Vdc
Emitter-Base Voltage	V_{EBO}	5.0			Vdc
Collector Current	I_C	200			mAdc
Total Power Dissipation @T_A = +25^{0}C [1] @T_C = +25^{0}C [2]	P_T	1.0 5.0			W W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200			^{0}C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	35	^{0}C/W

1) Derate linearly 5.71 mW/^{0}C for T_A > +25^{0}C
2) Derate linearly 28.6 mW/^{0}C for T_C > +25^{0}C



TO-39*
(TO-205AD)

*See appendix A for package outline

ELECTRICAL CHARACTERISTICS (T_C = 25^{0}C unless otherwise noted)

Characteristics		Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage I_C = 1.0 mAdc	2N3743 2N4930 2N4931	$V_{(BR)CEO}$	300 200 250		Vdc
Collector-Emitter Breakdown Voltage I_C = 100 µAdc	2N3743 2N4930 2N4931	$V_{(BR)CBO}$	300 200 250		Vdc
Emitter-Base Breakdown Voltage I_E = 100 µAdc		$V_{(BR)EBO}$		5.0	Vdc
Collector-Base Cutoff Current V_{CB} = 250 Vdc V_{CB} = 150 Vdc V_{CB} = 200 Vdc	 2N3743 2N4930 2N4931	I_{CBO}		 250 250 250	ηAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
Emitter-Base Cutoff Current V_{EB} = 4.0 Vdc	I_{EBO}		150	ηAdc
ON CHARACTERISTICS (3)				
Forward-Current Transfer Ratio I_C = 0.1 mAdc, V_{CE} = 10 Vdc I_C = 1.0 mAdc, V_{CE} = 10 Vdc I_C = 10 mAdc, V_{CE} = 10 Vdc I_C = 30 mAdc, V_{CE} = 10 Vdc I_C = 50 mAdc, V_{CE} = 20 Vdc	h_{FE}	 30 40 40 50 30	 200 	
Collector-Emitter Saturation Voltage I_C = 30 mAdc, I_B = 3.0 mAdc I_C = 10 mAdc, I_B = 1.0 mAdc	$V_{CE(sat)}$		1.2 1.0	Vdc
Base-Emitter Saturation Voltage I_C = 10 mAdc, I_B = 1.0 mAdc I_C = 30 mAdc, I_B = 3.0 mAdc	$V_{BE(sat)}$		1.0 1.2	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 10 mAdc, V_{CE} = 20 Vdc, f = 20 MHz	$\lvert h_{fe} \rvert$	2.0	8.0	
Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz	h_{fe}	30	300	
Output Capacitance V_{CB} = 20 Vdc, I_E = 0, f ≥ 0.1 MHz	C_{obo}		15	pF
Input Capacitance V_{EB} = 1.0 Vdc, I_C = 0, f ≥ 0.1 MHz	C_{ibo}		400	pF

SAFE OPERATING AREA

DC Tests

T_C = +25^{0}C, 1 Cycle, t ≥ 1.0 s

Test 1

V_{CE} = 20 Vdc, I_C = 50 mAdc — All Types

Test 2

V_{CE} = 100 Vdc, I_C = 10 mAdc — All Types

Test 3

V_{CE} = 300 Vdc, I_C = 3.3 mAdc — 2N3743

V_{CE} = 200 Vdc, I_C = 5.0 mAdc — 2N4930

V_{CE} = 250 Vdc, I_C = 4.0 mAdc — 2N4931

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