Microsemi LAWRENCE

TECHNICAL DATA

PNP POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/441

Devices		*Qualified Level*
2N3740	**2N3741**	**JAN JANTX JANTXV**

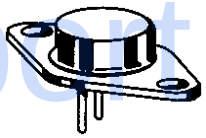
MAXIMUM RATINGS

Ratings	Symbol	2N3740	2N3741	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CBO}	60	80	Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Base Current	I_B	2.0		Adc
Collector Current	I_C	4.0		Adc
Total Power Dissipation @ $T_C = +25^0C$ (1) @ $T_C = +100^0C$	P_T	25 14		W W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	7.0	$^0C/W$

1) Derate linearly @143 mW/^{0}C for $T_C > +25^0C$



TO-66 (TO-213AA)

*See Appendix A for Package Outline

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

Characteristics		Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage I_C = 100 mAdc	2N3740 2N3741	$V_{(BR)CEO}$	60 80		Vdc
Collector-Emitter Cutoff Current V_{CE} = 40 Vdc V_{CE} = 60 Vdc	2N3740 2N3741	I_{CEO}		10 10	µAdc
Collector-Emitter Cutoff Current V_{CE} = 60 Vdc, V_{BE} = 1.5 Vdc V_{CE} = 80 Vdc, V_{BE} = 1.5 Vdc	2N3740 2N3741	I_{CEX}		300 300	ηAdc
Collector-Base Cutoff Current V_{CB} = 60 Vdc V_{CB} = 80 Vdc	2N3740 2N3741	I_{CBO}		100 100	ηAdc
Emitter-Base Cutoff Current V_{EB} = 7.0 Vdc		I_{EBO}		100	ηAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS [2]				
Forward-Current Transfer Ratio				
I_C = 100 mAdc, V_{CE} = 1.0 Vdc	h_{FE}	40	120	
I_C = 250 mAdc, V_{CE} = 1.0 Vdc		30		
I_C = 500 mAdc, V_{CE} = 1.0 Vdc		20		
I_C = 1.0 Adc, V_{CE} = 1.0 Vdc		10		
I_C = 4.0 Adc, V_{CE} = 5.0 Vdc		3.0		
Collector-Emitter Saturation Voltage				
I_C = 250 mAdc, I_B = 25 mAdc	$V_{CE(sat)}$		0.4	Vdc
I_C = 1.0 Adc, I_B = 125 mAdc			0.6	
Base-Emitter Voltage				
I_C = 250 mAdc, V_{CE} = 1.0 Vdc	$V_{BE(on)}$		1.0	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio	$\lvert h_{fe} \rvert$			
I_C = 100 mAdc, V_{CE} = 10 Vdc, f = 5.0 MHz		1.0	12	
Small-Signal Short-Circuit Forward Current Transfer Ratio				
I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz	h_{fe}	25	250	
Output Capacitance				
V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C_{obo}		100	pF
SWITCHING CHARACTERISTICS				
Turn-On Time				
V_{CC} = 30 Vdc; I_C = 1.0 Adc; I_B = 0.1 Adc	t_{on}		400	µs
Turn-Off Time				
V_{CC} = 30 Vdc; I_C = 1.0 Adc; I_B = I_B = 0.1 Adc	t_{off}		1.0	µs

SAFE OPERATING AREA

DC Tests

T_C = +25^{0}C, 1 Cycle, t = 1.0 s

Test 1

V_{CE} = 6.25 Vdc, I_C = 4.0 Adc

Test 2

V_{CE} = 20 Vdc, I_C = 1.25 Adc

Test 3

V_{CE} = 50 Vdc, I_C = 150 mAdc 2N3740

V_{CE} = 65 Vdc, I_C = 150 mAdc 2N3741

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