Microsemi LAWRENCE

TECHNICAL DATA

NPN MEDIUM POWER SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/99

Devices	*Qualified Level*
2N696, 2N696S, 2N697, 2N697S	**JAN**

MAXIMUM RATINGS

Ratings	Symbol	Value	Units
Collector-Base Voltage	V_{CBO}	60	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Total Power Dissipation @ $T_A = 25^0C$ (1) @ $T_C = 25^0C$ (2)	P_T	0.6 2.0	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	$R_{\theta JC}$	0.075	$^0C/mW$

1) Derate linearly 4.0 mW/^{0}C for $T_A > 25^0C$
2) Derate linearly 13.3 mW/^{0}C for $T_C > 25^0C$

TO-5*

*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 R_{BE} = 10 Ω, I_C = 100 mAdc		$V_{(BR)CER}$	40		Vdc
Collector-Base Cutoff Current V_{CB} = 100 Vdc V_{CB} = 30 Vdc		I_{CBO}		10 0.1	µAdc
Emitter-Base Cutoff Current V_{EB} = 7.0 Vdc		I_{EBO}		10	µAdc
ON CHARACTERISTICS (3)					
Forward-Current Transfer Ratio I_C = 150 mAdc, V_{CE} = 10 Vdc I_C = 500 mAdc, V_{CE} = 10 Vdc	2N696,s 2N697,s 2N696,s 2N697,s	h_{FE}	20 40 12.5 20.0	60 120	
Collector-Emitter Saturation Voltage I_C = 150 mAdc, I_B = 15 mAdc		$V_{CE(sat)}$	0.3	1.5	Vdc
Base-Emitter Saturation Voltage I_C = 150 mAdc, I_B = 15 mAdc		$V_{BE(sat)}$		1.3	Vdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward-Current Transfer Ratio I_C = 50 mAdc, V_{CE} = 10 Vdc; f = 20 MHz 2N696,s 2N697,s	$\lvert h_{fe} \rvert$	 2.5 3.0	 10 12	
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C_{obo}	2.0	25	pF
SWITCHING CHARACTERISTICS				
Turn-On Time (See Figure 3 of MIL-PRF-19500/ 99)	t_{on}		200	ηs
Turn-Off Time (See Figure 4 of MIL-PRF-19500/99)	t_{off}		1,000	ηs

(3) Pulse Test: Pulse Width 250 to 350μs, Duty Cycle ≤ 2.0%.