SOT323 NPN SILICON PLANAR GENERAL PURPOSE TRANSISTOR

ZUMT848B

ISSUE 1 - DECEMBER 1998

Partmarking Detail: - T14

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CES}	30	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	100	mA
Peak Pulse Current	I_{EM}	200	mA
Base Current	I_{BM}	200	mA
Power Dissipation at T_{amb}=25°C	P_{tot}	330	mW
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector Cut-Off Current	I_{CBO}			15 5	nA µA	V_{CB} = 30V V_{CB} = 30V, T_{amb}=150°C
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		90	250	mV	I_C=10mA, I_B=0.5mA
			200	600	mV	I_C=100mA, I_B=5mA
			300	600	mV	I_C=10mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		700 900		mV	I_C=10mA ,I_B=0.5mA I_C=100mA,I_B=5mA
Base-Emitter Voltage	V_{BE}	580	650	750 770	mV	I_C=2mA, V_{CE}=5V I_C=10mA, V_{CE}=5V

* Collector-Emitter Saturation Voltage at I_C = 10mA for the characteristics going through the operating point I_C = 11mA, V_{CE} = 1V at constant base current.

TYPICAL CHARACTERISTICS

ZUMT848B

ELECTRICAL CHARACTERISTICS (Continued)

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Noise Figure		N	–	2	10	dB	V_{CB} = 5V, I_C=200μA, R_G=2kΩ, f=1kHz, Δf=200Hz
			–	–	–	dB	V_{CB} = 5V, I_C=200μA, R_G=2kΩ, f=30Hz to 15kHz at 3dB points
Equivalent Noise Voltage		e_n	–	–	–	nV	V_{CB} = 5V, I_C=200μA, R_G=2kΩ, f=10Hz to 50Hz at 3dB points
Dynamic Characteristics	Group B	h_{ie}	3.2	4.5	8.5	kΩ	V_{CE}=5V Ic=2mA f=1kHz
	Group B	h_{re}		2		$x10^{-4}$	
	Group B	h_{fe}	240	330	500		
	Group B	h_{oe}	–	30	60	μs	
Static Forward Current Ratio	Group B	h_{FE}		150			I_C=0.01mA,V_{CE}=5V
			200	290	450		I_C=2mA, V_{CE}=5V
			–	200	–		I_C=100mA,V_{CE}=5V
Transition Frequency		f_T	–	300	–	MHz	I_C=10mA,V_{CE}=5V f=100MHz
Collector-Base Capacitance		C_{obo}		2.5	4.5	pF	V_{CB}=10V, f=1MHz
Emitter-Base Capacitance		C_{ibo}		9		pF	V_{EB}=0.5V, f=1MHz