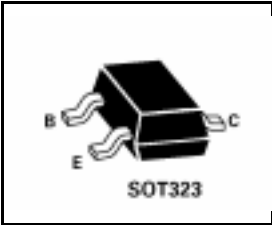


SOT323 NPN SILICON PLANAR
GENERAL PURPOSE TRANSISTOR
ISSUE 1 - DECEMBER 1998

ZUMT850B
ZUMT850C

Partmarking Detail: ZUMT850B - T1B
 ZUMT850C - T21



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CES}	50	V
Collector-Emitter Voltage	V_{CEO}	45	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 $T_{amb}=25^{\circ}C$	P_{tot}	330	mW
Operating and Storage Temperature Range	T_j, T_{stg}	-55 to +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector Cut-Off Current	I_{CBO}			15 5	nA μA	$V_{CB} = 30V$ $V_{CB} = 30V, T_{amb}=150^{\circ}C$
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	660	700 770	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

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ELECTRICAL CHARACTERISTICS (Continued)

PARAMETER		SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Noise Figure		N	-	1	4	dB	$V_{CB} = 5V, I_C = 200\mu A, R_G = 2k\Omega, f = 1kHz, \Delta f = 200Hz$
			-	1.4	3	dB	$V_{CB} = 5V, I_C = 200\mu A, R_G = 2k\Omega, f = 30Hz \text{ to } 15kHz \text{ at } -3dB \text{ points}$
Equivalent Noise Voltage		e_n	-	-	135	nV	$V_{CB} = 5V, I_C = 200\mu A, R_G = 2k\Omega, f = 10Hz \text{ to } 50Hz \text{ at } -3dB \text{ points}$
Dynamic Characteristics	Group B	h_{ie}	3.2	4.5	8.5	$k\Omega$	$V_{CE} = 5V$ $I_C = 2mA$ $f = 1kHz$
	Group C		6	8.7	15	$k\Omega$	
	Group B	h_{re}		2		$\times 10^{-4}$	
	Group C			3		$\times 10^{-4}$	
	Group B	h_{fe}	240	330	500		
	Group C		450	600	900		
	Group B	h_{oe}	-	30	60	μs	
	Group C		-	60	110	μs	
Static Forward Current Ratio	Group B	h_{FE}		150			$I_C = 0.01mA, V_{CE} = 5V$
			220	290	450		$I_C = 2mA, V_{CE} = 5V$
			-	-	-		$I_C = 100mA, V_{CE} = 5V$
	Group C	h_{FE}		270			$I_C = 0.01mA, V_{CE} = 5V$
			420	500	800		$I_C = 2mA, V_{CE} = 5V$
			-	-	-		$I_C = 100mA, V_{CE} = 5V$
Transition Frequency		f_T	-	300	-	MHz	$I_C = 10mA, V_{CE} = 5V, f = 100MHz$
Collector-Base Capacitance		C_{obo}		2.5	4.5	pF	$V_{CB} = 10V, f = 1MHz$