

Super323™ SOT323 NPN SILICON POWER (SWITCHING) TRANSISTOR

ISSUE 1 - SEPTEMBER 1998

ZUMT619

FEATURES

- * **500mW POWER DISSIPATION**
- * **I_C CONT 1A**
- * 2A Peak Pulse Current
- * Excellent H_{FE} Characteristics Up To 2A (pulsed)
- * Extremely Low Equivalent On Resistance; R_{CE(sat)}

APPLICATIONS

- * LCD backlighting inverter circuits
- * Boost functions in DC-DC converters



DEVICE TYPE	COMPLEMENT	PARTMARKING	R _{CE(sat)}
ZUMT619	ZUMT720	T63	160mΩ at 1A

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-Base Voltage	V _{EBO}	5	V
Peak Pulse Current**	I _{CM}	2	A
Continuous Collector Current	I_C	1.0	A
Base Current	I _B	200	mA
Power Dissipation at T_{amb}=25°C	P_{tot}	385 † 500 ‡	mW
Operating and Storage Temperature Range	T _j ; T _{stg}	-55 to +150	°C

† Recommended P_{tot} calculated using FR4 measuring 10 x 8 x 0.6mm (still air).

‡ Maximum power dissipation is calculated assuming that the device is mounted on FR4 size 25x25x0.6mm and using comparable measurement methods adopted by other suppliers.

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50			V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50			V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			10	nA	$V_{CB} = 40\text{V}$
Emitter Cut-Off Current	I_{EBO}			10	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cut-Off Current	I_{CES}			10	nA	$V_{CES} = 40\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		24 60 120 160	35 80 200 270	mV mV mV mV	$I_C = 100\text{mA}, I_B = 10\text{mA}^*$ $I_C = 250\text{mA}, I_B = 10\text{mA}^*$ $I_C = 500\text{mA}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		940	1100	mV	$I_C = 1\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		850	1100	mV	$I_C = 1\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	200 300 200 75 20	420 450 350 130 60			$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 100\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 500\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 1.5\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	f_T		215		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}		615		pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(on)}$		150		ns	$V_{CC} = 10\text{V}, I_C = 1\text{A}$ $I_{B1} = I_{B2} = 100\text{mA}$
Turn-Off Time	$t_{(off)}$		425		ns	

*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

TYPICAL CHARACTERISTICS

