

# Super323™ SOT323 PNP SILICON POWER (SWITCHING) TRANSISTOR

## ZUMT720

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### FEATURES

- \* **500mW POWER DISSIPATION**
- \* 1A Peak Pulse Current
- \* Excellent  $H_{FE}$  Characteristics Up To 1A (pulsed)
- \* Low Saturation Voltage
- \* Low Equivalent On Resistance;  $R_{CE(sat)}$

### APPLICATIONS

- \* Boost functions in DC-DC converters
- \* Motor driver functions



DEVICE TYPE	COMPLEMENT	PARTMARKING	$R_{CE(sat)}$
ZUMT720	ZUMT619	T73	240mΩ at 750mA

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-40	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Peak Pulse Current**	$I_{CM}$	-1	A
<b>Continuous Collector Current</b>	$I_C$	<b>-0.75</b>	A
Base Current	$I_B$	-200	mA
<b>Power Dissipation at <math>T_{amb}=25^{\circ}C^*</math></b>	$P_{tot}$	<b>385 †</b> <b>500 ‡</b>	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	$V_{(BR)CBO}$	-40			V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-40			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	$V_{CB} = -35\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			-10	nA	$V_{EB} = -4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$			-10	nA	$V_{CES} = -35\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-50 -90 -140 -180	-65 -120 -200 -250	mV mV mV mV	$I_C = -0.1\text{A}, I_B = -10\text{mA}^*$ $I_C = -0.25\text{A}, I_B = -20\text{mA}^*$ $I_C = -0.5\text{A}, I_B = -50\text{mA}^*$ $I_C = -0.75\text{A}, I_B = -100\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-1000	-1100	mV	$I_C = -0.75\text{A}, I_B = -100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-890	-1100	mV	$I_C = -0.75\text{A}, V_{CE} = -2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	300 300 90 40 20	510 450 190 60 30			$I_C = -10\text{mA}, V_{CE} = -2\text{V}^*$ $I_C = -0.1\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -0.75\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -1\text{A}, V_{CE} = -2\text{V}^*$
Transition Frequency	$f_T$		220		MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	$C_{obo}$		8		pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(on)}$		75		ns	$V_{CC} = -10\text{V}, I_C = -0.75\text{A}$ $I_{B1} = I_{B2} = -100\text{mA}$
Turn-Off Time	$t_{(off)}$		315		ns	

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

## TYPICAL CHARACTERISTICS

