

# Super323™ SOT323 NPN SILICON POWER(SWITCHING) TRANSISTOR

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## ZUMT618

### FEATURES

- \* **500mW POWER DISSIPATION**
- \* **I<sub>C</sub> CONT 1.25A**
- \* 3A Peak Pulse Current
- \* Excellent H<sub>FE</sub> Characteristics Up to 3A (pulsed)
- \* Extremely Low Equivalent On Resistance; R<sub>CE(sat)</sub>

### APPLICATIONS

- \* Corded telecoms.
- \* Boost functions in DC-DC converters
- \* Motor driver functions



DEVICE TYPE	COMPLEMENT	PARTMARKING	R <sub>CE(sat)</sub>
ZUMT618	ZUMT718	T62	125mΩ at 1.25A

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	20	V
Collector-Emitter Voltage	V <sub>CEO</sub>	20	V
Emitter-Base Voltage	V <sub>EBO</sub>	5	V
Peak Pulse Current**	I <sub>CM</sub>	4	A
<b>Continuous Collector Current</b>	<b>I<sub>C</sub></b>	<b>1.25</b>	<b>A</b>
Base Current	I <sub>B</sub>	500	mA
<b>Power Dissipation at T<sub>amb</sub>=25°C</b>	<b>P<sub>tot</sub></b>	<b>385 †</b> <b>500 ‡</b>	<b>mW</b>
Operating and Storage Temperature Range	T <sub>J</sub> ; T <sub>stg</sub>	-55 to +150	°C

† Recommended P<sub>tot</sub> 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	$V_{(BR)CBO}$	20			V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20			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	$V_{CB} = 16\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			10	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$			10	nA	$V_{CES} = 16\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		16.5 40 80 140 155	25 60 115 200 250	mV mV mV mV mV	$I_C = 100\text{mA}, I_B = 10\text{mA}^*$ $I_C = 250\text{mA}, I_B = 10\text{mA}^*$ $I_C = 500\text{mA}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 20\text{mA}^*$ $I_C = 1.25\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		955	1100	mV	$I_C = 1.25\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		840	1100	mV	$I_C = 1.25\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	200 300 200 100 40 20	420 450 380 300 180 60			$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 100\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 500\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 2\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 4\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	$f_T$		210		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	$C_{obo}$		10		pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(on)}$		50		ns	$V_{CC} = 10\text{V}, I_C = 1\text{A}$ $I_{B1} = I_{B2} = 100\text{mA}$
Turn-Off Time	$t_{(off)}$		275		ns	

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

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## TYPICAL CHARACTERISTICS

