Super323™ SOT323 PNP SILICON POWER (SWITCHING) TRANSISTOR

ZUMT720

ISSUE 1 - SEPTEMBER 1998

FEATURES

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



SOT323

APPLICATIONS

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

DEVICE TYPE	COMPLEMENT	PARTMARKING	$\mathbf{R_{CE(sat)}}$
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
Continuous Collector Current	$\mathbf{I_C}$	**-0.75**	A
Base Current	I_B	-200	mA
Power Dissipation at T_{amb}=25°C*	$\mathbf{P_{tot}}$	**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 size25x25x0.6mm and using comparable measurement methods adopted by other suppliers.

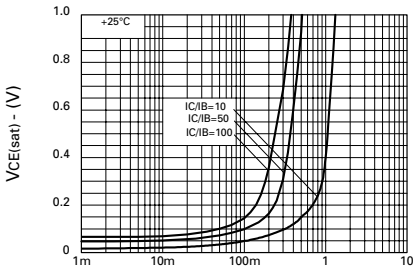
ZUMT720

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

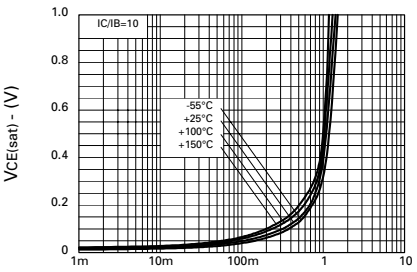
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-40			V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-40			V	I_C= -10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	I_E= -100μA
Collector Cut-Off Current	I_{CBO}			-10	nA	V_{CB}=-35V
Emitter Cut-Off Current	I_{EBO}			-10	nA	V_{EB}=-4V
Collector Emitter Cut-Off Current	I_{CES}			-10	nA	V_{CES}=-35V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-50 -90 -140 -180	-65 -120 -200 -250	mV mV mV mV	I_C= -0.1A, I_B= -10mA* I_C= -0.25A, I_B=-20mA* I_C= -0.5A, I_B=-50mA* I_C= -0.75A, I_B=-100mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-1000	-1100	mV	I_C= -0.75A, I_B= -100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-890	-1100	mV	I_C= -0.75A, V_{CE}= -2V*
Static Forward Current Transfer Ratio	h_{FE}	300 300 90 40 20	510 450 190 60 30			I_C= -10mA, V_{CE}=-2V* I_C= -0.1A, V_{CE}= -2V* I_C= -0.5A, V_{CE}=-2V* I_C= -0.75A, V_{CE}= -2V* I_C= -1A, V_{CE}= -2V*
Transition Frequency	f_T		220		MHz	I_C= -50mA, V_{CE}=-10V f= 100MHz
Output Capacitance	C_{obo}		8		pF	V_{CB}= -10V, f=1MHz
Turn-On Time	$t_{(on)}$		75		ns	V_{CC}= -10V, I_C=-0.75A I_{B1}=I_{B2}=-100mA
Turn-Off Time	$t_{(off)}$		315		ns	

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

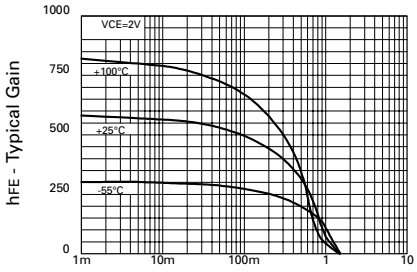
TYPICAL CHARACTERISTICS



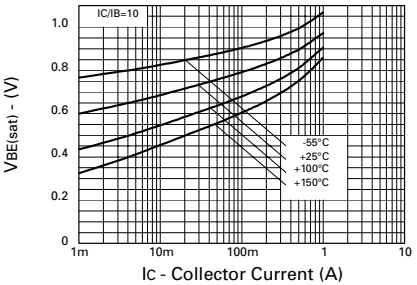
VCE(sat) v IC



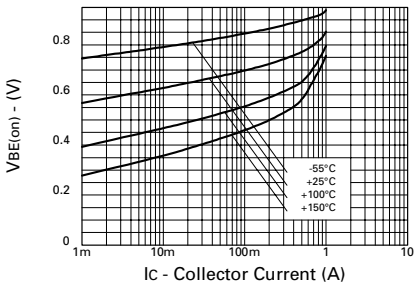
VCE(sat) v IC



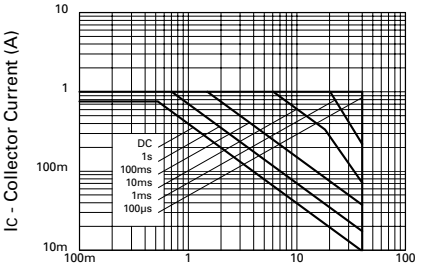
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area