Super323™ SOT323 PNP SILICON POWER (SWITCHING) TRANSISTOR

ZUMT717

ISSUE 1 - SEPTEMBER 1998

FEATURES

* **500mW POWER DISSIPATION**
* **I_C CONT 1.5A**
* 3A Peak Pulse Current
* Excellent H_{FE} Characteristics Up To 3A (pulsed)
* Extremely Low Saturation Voltage
* Extremely Low Equivalent On Resistance; **$R_{CE(sat)}$**

SOT323

APPLICATIONS

* Negative boost functions in DC-DC converters
* Supply line switching in mobile phones and pagers
* Motor drivers in camcorders and mini disk players

DEVICE TYPE	COMPLEMENT	PARTMARKING	$R_{CE(sat)}$
ZUMT717	ZUMT617	T71	**150mΩ at 1.25A**

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-12	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-5	V
Peak Pulse Current**	I_{CM}	-3	A
Continuous Collector Current	**I_C**	**-1.25**	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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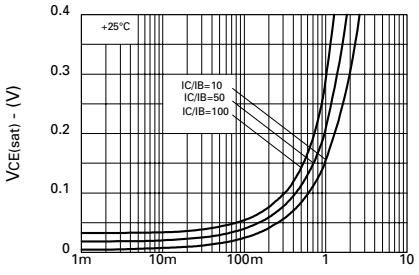
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

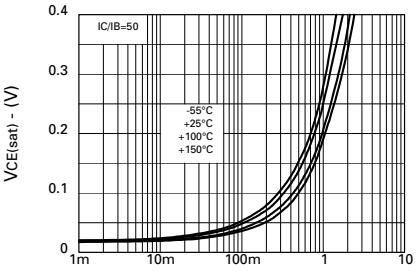
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-12			V	I_C= -100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-12			V	I_C= -10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	I_E= -100μA
Collector Cut-Off Current	I_{CBO}			-10	nA	V_{CB}=-10V
Emitter Cut-Off Current	I_{EBO}			-10	nA	V_{EB}=-4V
Collector Emitter Cut-Off Current	I_{CES}			-10	nA	V_{CES}=-10V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-25 -55 -110 -160 -185	-40 -100 -175 -215 -240	mV mV mV mV mV	I_C= -0.1A, I_B= -10mA* I_C= -0.25A, I_B=-10 mA* I_C= -0.5A, I_B=-10 mA* I_C= -1A, I_B= -50mA* I_C= -1.25A, I_B= -100mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-990	-1100	mV	I_C= -1.25A, I_B= -100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-850	-1000	mV	I_C= -1.25A, V_{CE}= 2V*
Static Forward Current Transfer Ratio	h_{FE}	300 300 200 125 75 30	490 450 340 250 140 80			I_C= -10mA, V_{CE}=-2V* I_C= -0.1A, V_{CE}= -2V* I_C= -0.5A, V_{CE}= -2V* I_C= -1.25A, V_{CE}=-2V* I_C= -2A, V_{CE}= -2V* I_C= -3A, V_{CE}= -2V*
Transition Frequency	f_T		220		MHz	I_C= -50mA, V_{CE}=-10 V f= 100MHz
Output Capacitance	C_{obo}		15		pF	V_{CB}= -10V, f=1MHz
Turn-On Time	$t_{(on)}$		50		ns	V_{CC}= -10V, I_C=-1A I_{B1}=I_{B2}=-100mA
Turn-Off Time	$t_{(off)}$		135		ns	

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

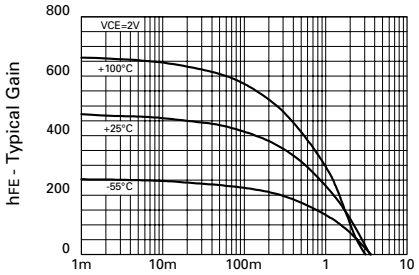
TYPICAL CHARACTERISTICS



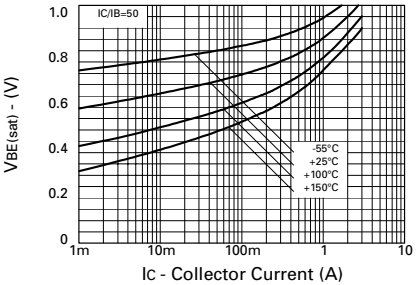
VCE(sat) v IC



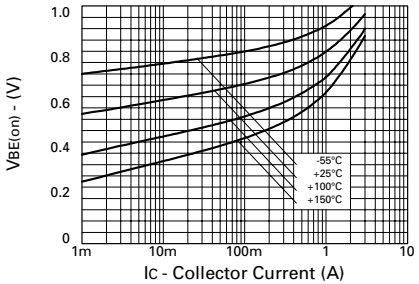
VCE(sat) v IC



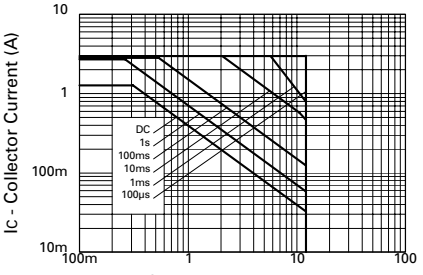
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area