"SuperSOT" SOT23 NPN SILICON POWER DARLINGTON TRANSISTOR

FMMT634

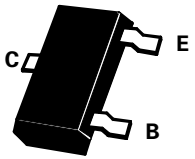
ISSUE 1 – APRIL 97

FEATURES

* **625mW POWER DISSIPATION**
* Highest current capability SOT23 Darlington
* Very high hFE - specified at 2A (5K minimum)
  - typically 600 at 5A

COMPLEMENTARY TYPE – FMMT734

PARTMARKING DETAIL – 634



SOT23

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	12	V
Peak Pulse Current	I_{CM}	5	A
Continuous Collector Current	I_C	900	mA
Power Dissipation	$\mathbf{P_{tot}}$	**625**	**mW**
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

* Maximum power dissipation is calculated assuming that the device is mounted on a ceramic substrate measuring 15x15x0.6mm.

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

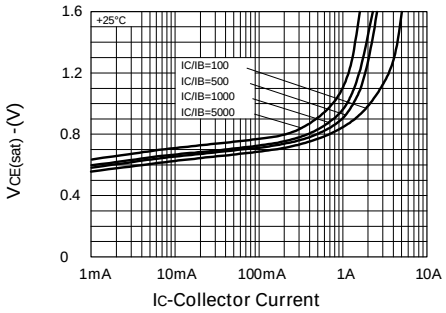
FMMT634

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

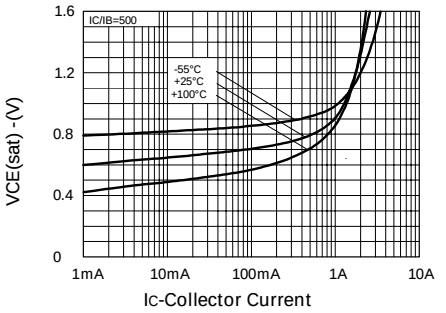
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	120	170		V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	100	115		V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	12	16		V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			10	nA	V_{CB}=80V
Emitter Cut-Off Current	I_{EBO}			10	nA	V_{EB}=7V
Collector Emitter Cut-Off Current	I_{CES}			100	nA	V_{CES}=80V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.67 0.72 0.75 0.82 0.68 0.85	0.75 0.80 0.85 0.93 — 0.96	V V V V V	I_C=100mA, I_B=1mA * I_C=250mA, I_B=1mA * I_C=500mA, I_B=5mA * I_C=900mA, I_B=5mA * I_C=900mA, I_B=5mA *† I_C=1A, I_B=5mA *
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.5	1.65	V	I_C=1A, I_B=5mA *
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		1.33	1.5	V	I_C=1A, V_{CE}=5V*
Static Forward Current Transfer Ratio	h_{FE}	20K 15K 5K	50K 60K 40K 14K 600 24K			I_C=10mA, V_{CE}=5V * I_C=100mA, V_{CE}=5V * I_C=1A, V_{CE}=5V * I_C=2A, V_{CE}=5V * I_C=5A, V_{CE}=5V * I_C=1A, V_{CE}=2V *
Transition Frequency	f_T		140		MHz	I_C=50mA, V_{CE}=10V f=100MHz
Output Capacitance	C_{obo}		9	20	pF	V_{CB}=10V, f=1MHz
Turn-On Time	$t_{(on)}$		290		ns	I_C=500mA V_{CC}=20V I_B=±1mA
Turn-Off Time	$t_{(off)}$		2.4		μs	

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%.
† T_j=150°C

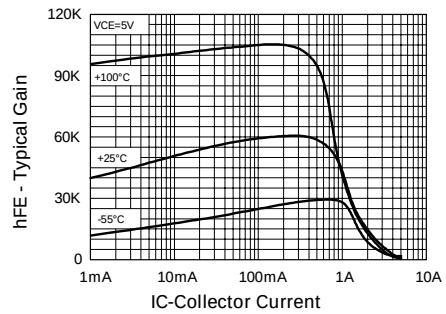
TYPICAL CHARACTERISTICS



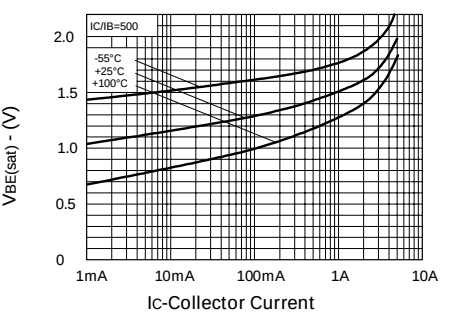
VCE(sat) v IC



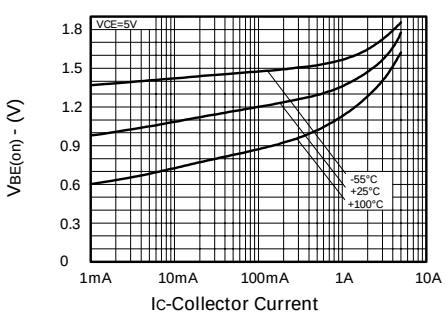
VCE(sat) v IC



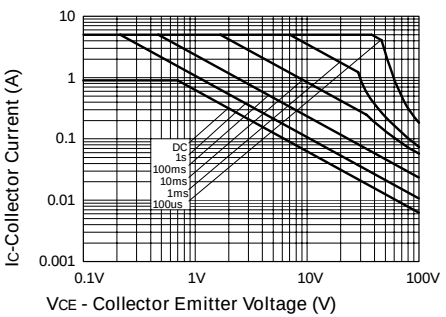
hFE V IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area