

# "SuperSOT" SOT23 NPN SILICON POWER DARLINGTON TRANSISTOR

**FMMT634**

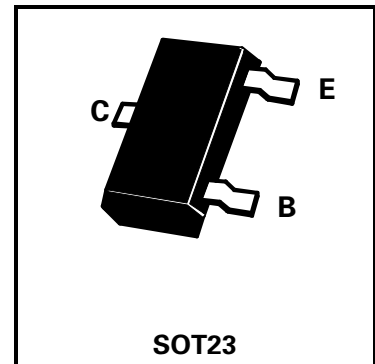
ISSUE 1 – APRIL 97

## 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



## 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
<b>Power Dissipation</b>	<b><math>P_{tot}</math></b>	<b>625</b>	<b>mW</b>
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 $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

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

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

†  $T_j = 150^{\circ}\text{C}$

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## TYPICAL CHARACTERISTICS

