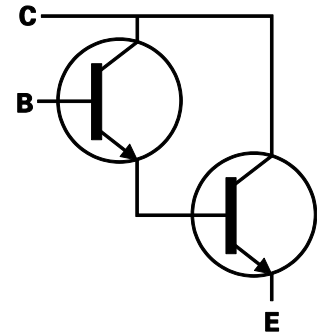




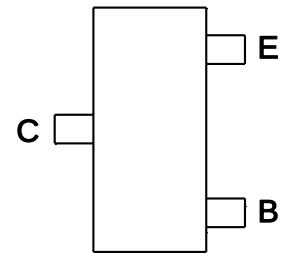
FMMT38C 60V NPN MEDIUM POWER DARLINGTON TRANSISTOR

Features

- $BV_{CEO} > 60V$
- $I_{CM} = 800mA$ Peak Pulse Current
- 330mW Power Dissipation
- Darlington Transistor with $h_{FE} > 10k$ at $I_C = 500mA$
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An Automotive-Compliant Part is Available Under Separate**



Marking : 7J



SOT-23

Absolute Maximum Ratings (@ $T_A = +25^{\circ}C$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector -Base Voltage	V_{CBO}	80	V
Collector -Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	10	V
Continuous Collector Current	I_C	300	mA
Peak Pulse Current	I_{CM}	800	mA

Thermal Characteristics (@ $T_A = +25^{\circ}C$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	330	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	378	$^{\circ}C/W$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	306	$^{\circ}C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^{\circ}C$

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.



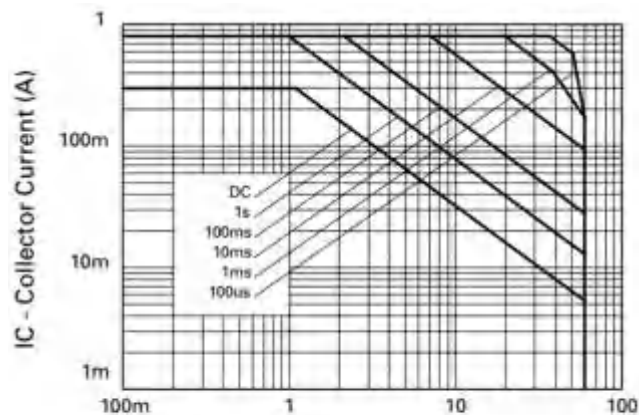
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	80	180	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV _{CEO}	60	75	—	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	10	16	—	V	I _E = 100μA
Collector Cutoff Current	I _{CBO}	—	1.5	100	nA	V _{CB} = 60V
Emitter Cutoff Current	I _{EBO}	—	1	100	nA	V _{EB} = 8V
Static Forward Current Transfer Ratio (Note 8)	h _{FE}	5k 10k	— 27k	—	—	I _C = 100mA, V _{CE} = 5V I _C = 500mA, V _{CE} = 5V
Collector-Emitter Saturation Voltage (Note 8)	V _{CE(SAT)}	—	0.89	1.25	V	I _C = 800mA, I _B = 8mA
Base-Emitter Turn-On Voltage (Note 8)	V _{BE(ON)}	—	1.3	1.8	V	I _C = 800mA, V _{CE} = 5V

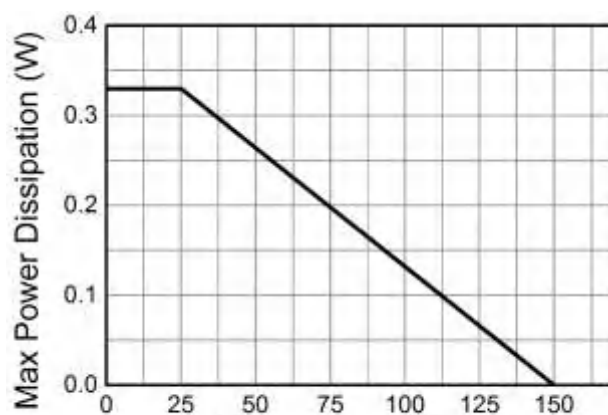
Note: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.



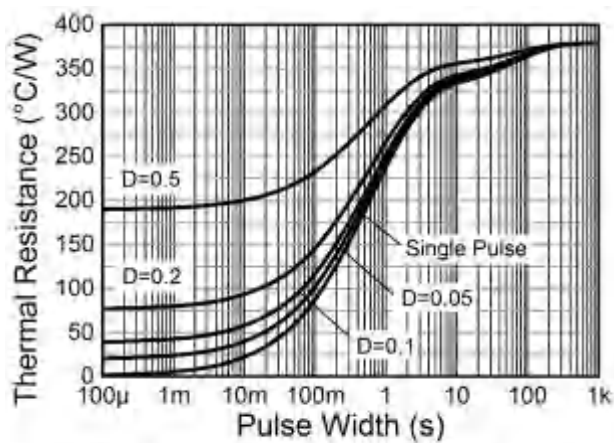
Thermal Characteristics and Derating Information



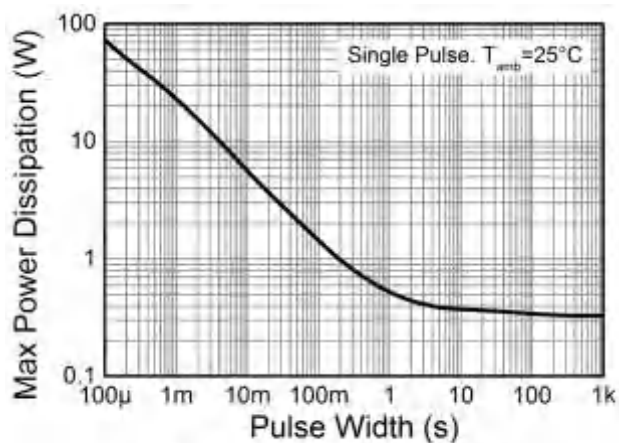
Safe Operating Area



Derating Curve



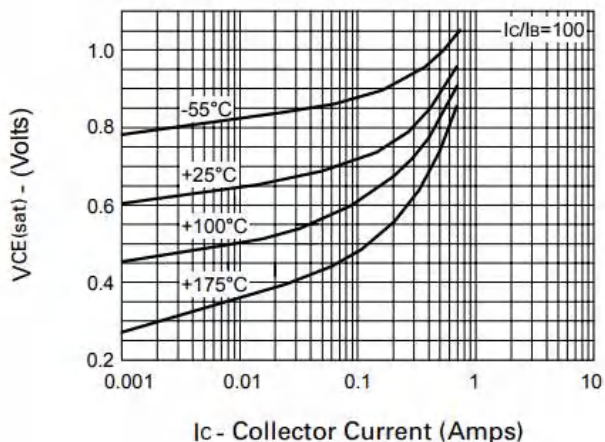
Transient Thermal Impedance



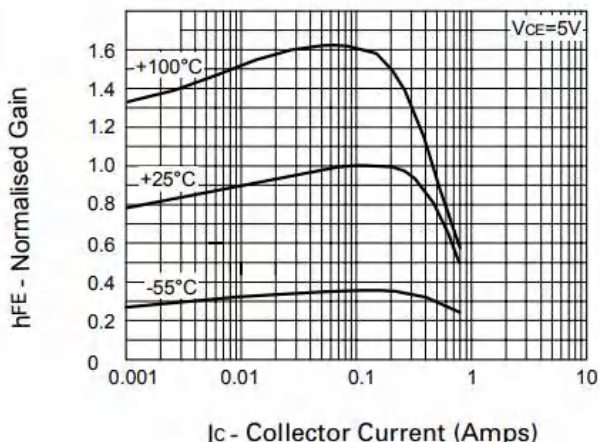
Pulse Power Dissipation



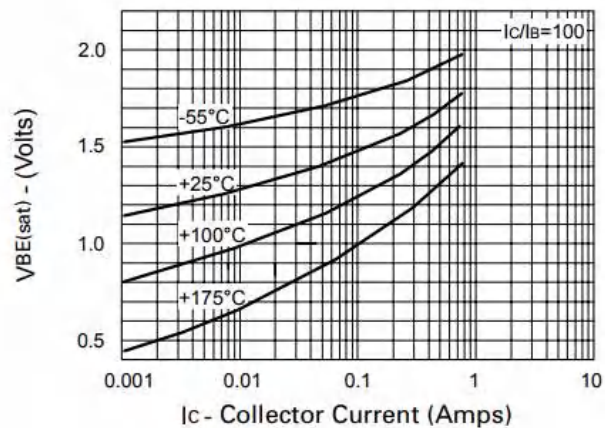
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



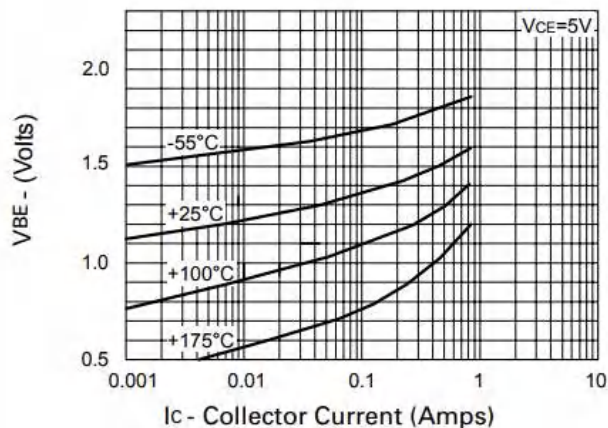
$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(sat)}$ v I_C



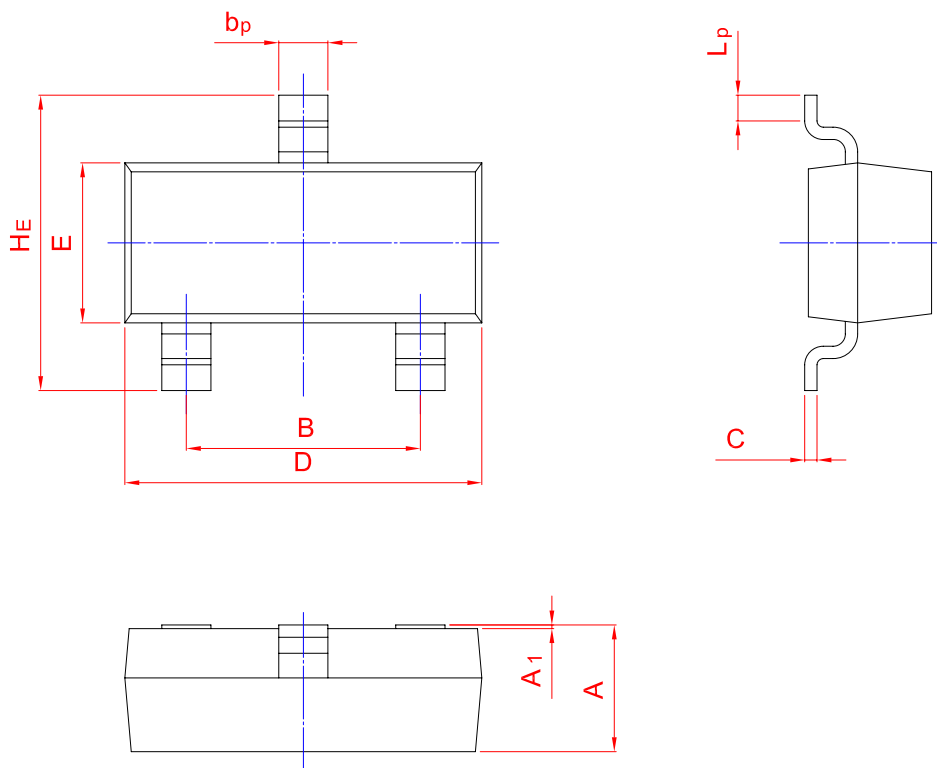
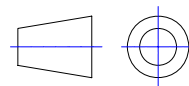
$V_{BE(on)}$ v I_C



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20