

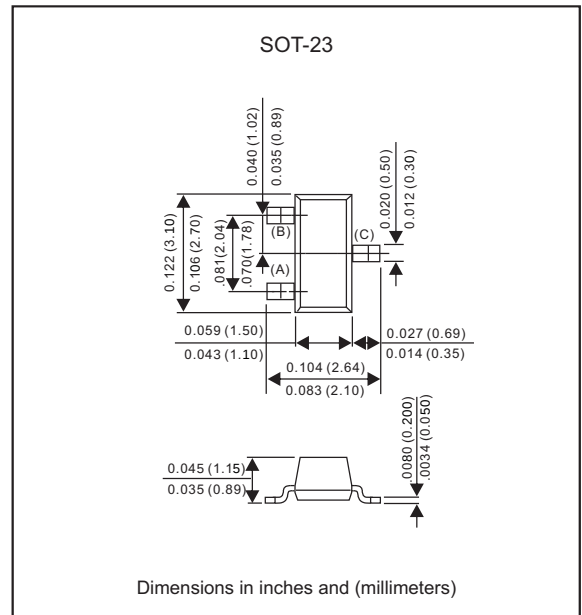
Features

- High voltage
- NPN
- Compliant to Halogen-free
- Suffix "-Q1" for AEC-Q101

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : SOT-23

Package outline



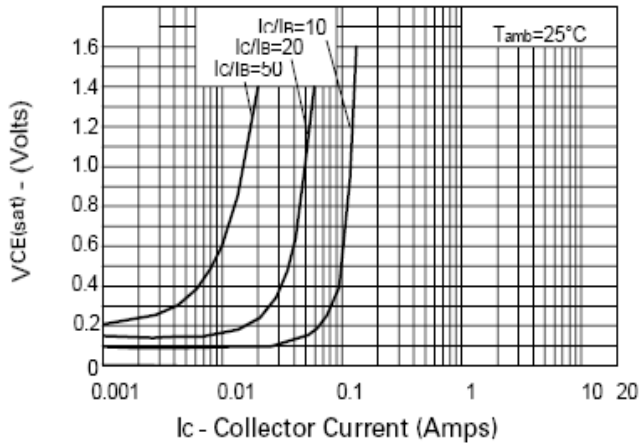
Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter	Value	Units
V _{CBO}	Collector-Base Voltage	400	V
V _{CEO}	Collector-Emitter Voltage	400	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	225	mA
I _{CM}	Peak Pulse Current	1	A
I _B	Base Current	200	mA
P _D	Power Dissipation	500	mW
T _j , T _{stg}	Junction and Storage Temperature	-55 to +150	°C

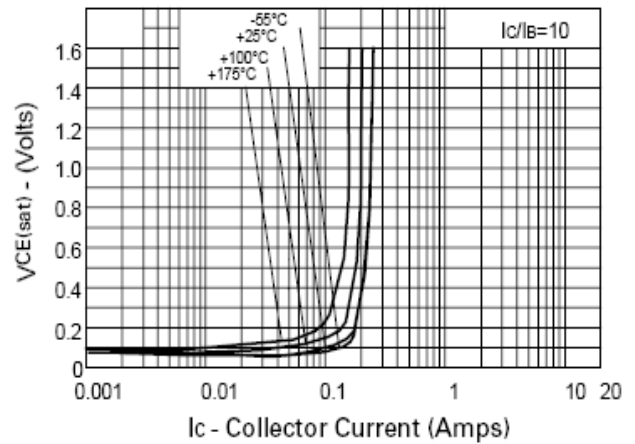
Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=320\text{V}, I_E=0$			0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE}=320\text{V}, I_B=0$			0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			0.1	μA
DC current gain	h_{FE}	$V_{CE}=10\text{V}, I_C=1\text{mA}$	100			
		$V_{CE}=10\text{V}, I_C=50\text{mA}$	100		300	
		$V_{CE}=10\text{V}, I_C=100\text{mA}$	15			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=20\text{mA}, I_B=2\text{mA}$ $I_C=50\text{mA}, I_B=6\text{mA}$			0.2 0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			0.9	V
Base-emitter turn on voltage	$V_{BE(on)}$	$I_C=50\text{mA}, V_{CE}=10\text{V}$			0.9	V
Transition frequency	f_T	$V_{CE}=20\text{V}, I_C=10\text{mA}$ $f=20\text{MHz}$	50			MHz
Collector output capacitance	C_{ob}	$V_{CB}=20\text{V}, f=1\text{MHz}$			5	pF
Switching times	t_{on} t_{off}	$I_C=50\text{mA}, V_{CC}=100\text{V}$ $I_{B1}=5\text{mA}, I_{B2}=10\text{mA}$		135 2260		nS

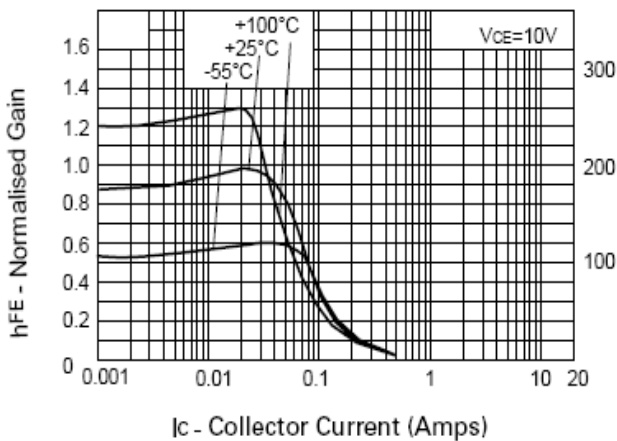
Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)



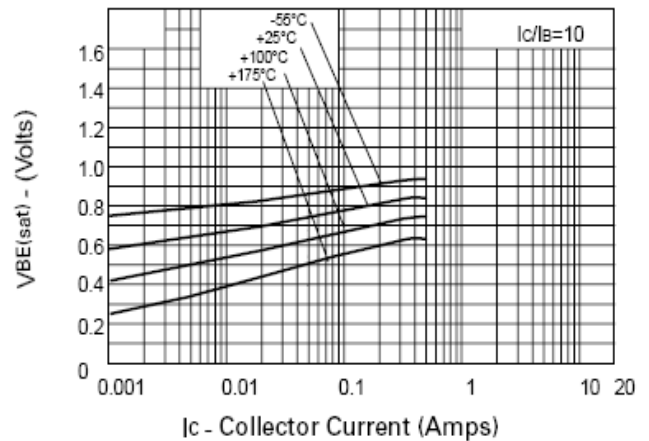
$V_{CE(sat)}$ v I_C



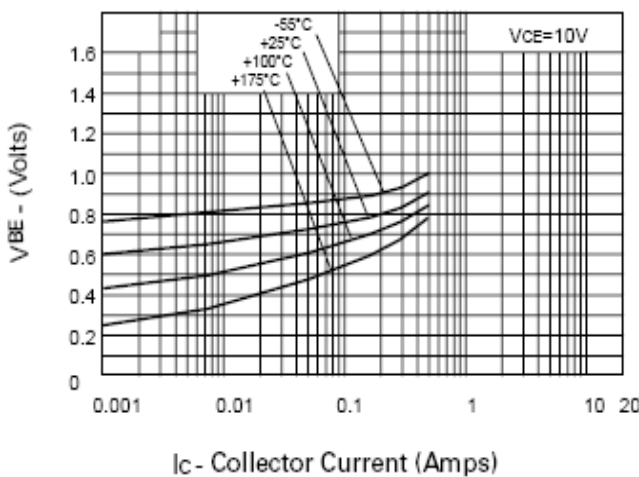
$V_{CE(sat)}$ v I_C



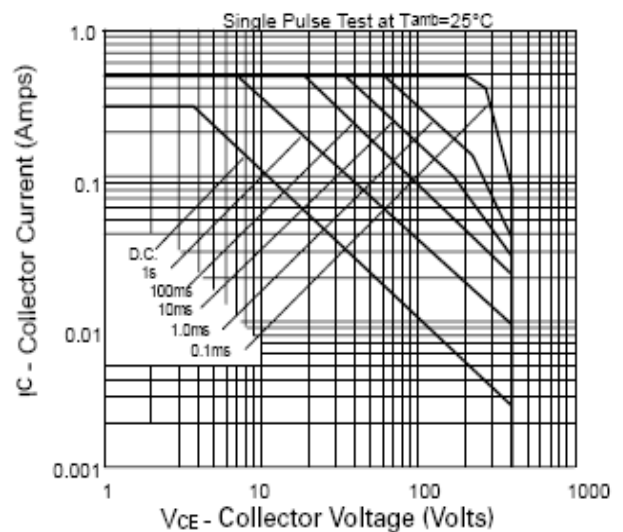
h_{FE} v I_C



$V_{BE(sat)}$ v I_C

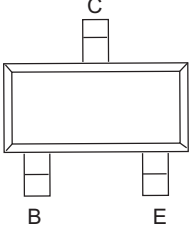
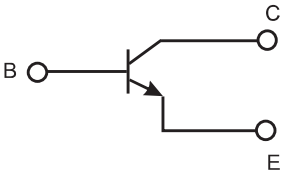


$V_{BE(on)}$ v I_C



Safe Operating Area

Pinning information

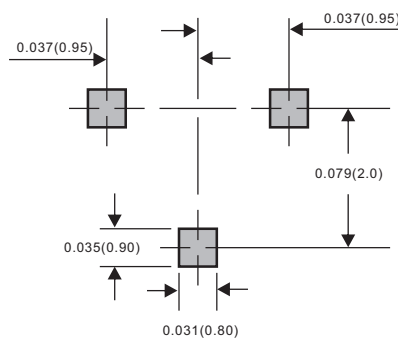
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
FMMT458-Q1	458

Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)