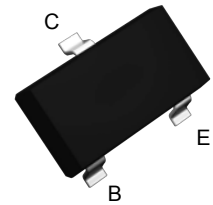


Features

- Low Cob
- General purpose small signal amplifier



SOT-23

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Max.	Unit
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CE0}	50	V
Emitter-Base Voltage	V_{EB0}	7	V
Collector Current	I_C	150	mA
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}\text{C}$
Thermal Resistance from Junction to Ambient ¹	$R_{\theta JA}$	625	$^{\circ}\text{C/W}$

Note:

1. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=50\mu\text{A}$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}$	50	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=50\mu\text{A}$	7	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB}=60\text{V}$	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=7\text{V}$	-	-	0.1	μA
DC Current Gain	MMBT2412-Q	h_{FE} $V_{CE}=6\text{V}, I_C=1\text{mA}$	120	-	270	-
	MMBT2412-R	h_{FE} $V_{CE}=6\text{V}, I_C=1\text{mA}$	180	-	390	-
	MMBT2412-S	h_{FE} $V_{CE}=6\text{V}, I_C=1\text{mA}$	270	-	560	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$	-	-	0.4	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=100\text{mA}, I_B=5\text{mA}$	-	-	1	V
Gain Bandwidth Product	f_T	$V_{CE}=12\text{V}, I_E=-2\text{mA}, F=100\text{MHz}$	-	180	-	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=12\text{V}, F=1\text{MHz}$	-	2	3.5	pF

Typical Characteristic Curves

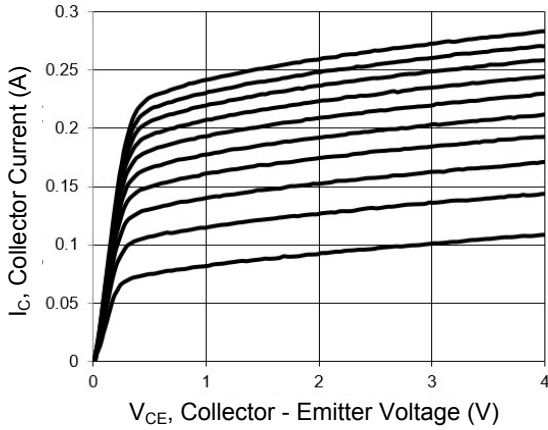


Figure 1. Output Characteristics Curve

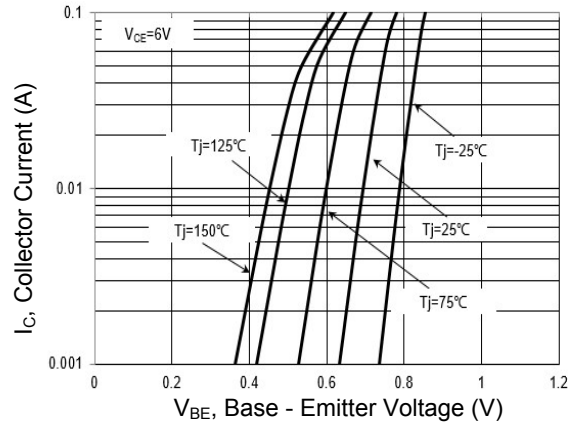


Figure 2. Collector Current vs. Base - Emitter Voltage

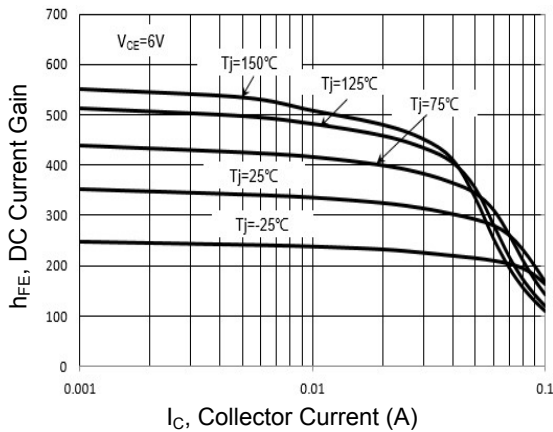


Figure 3. DC Current Gain vs. Collector Current

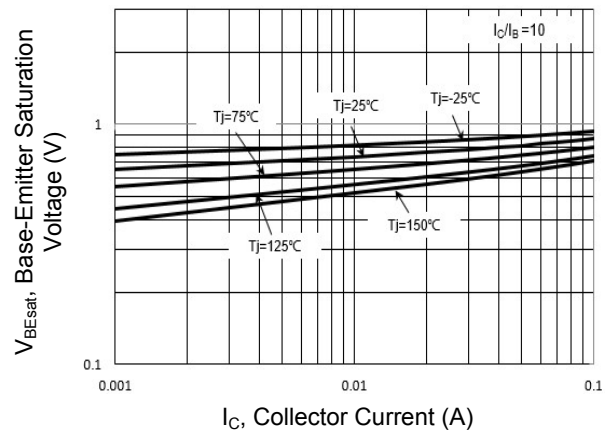


Figure 4. Base - Emitter Saturation Voltage vs. Collector Current

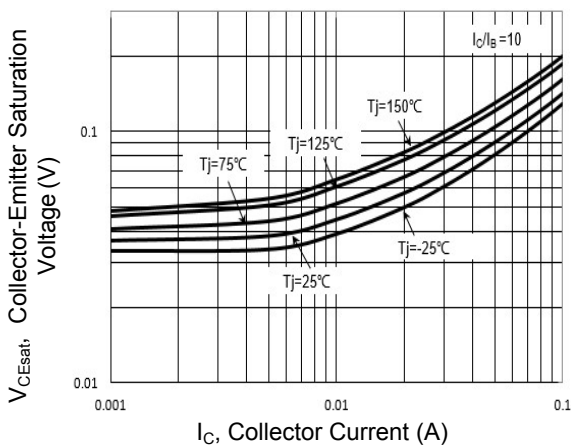


Figure 5. Collector - Emitter Saturation Voltage vs. Collector Current

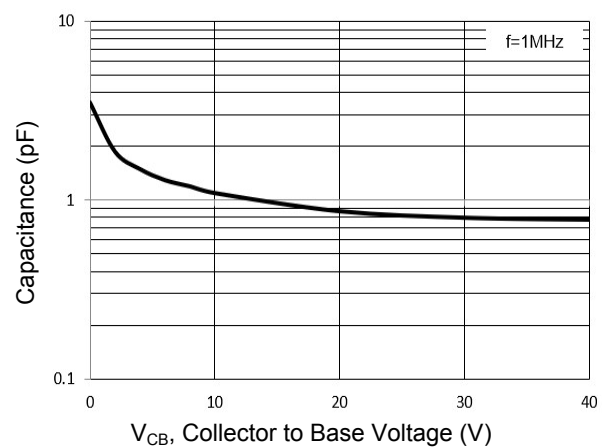


Figure 6. Output Capacitance

Typical Characteristic Curves

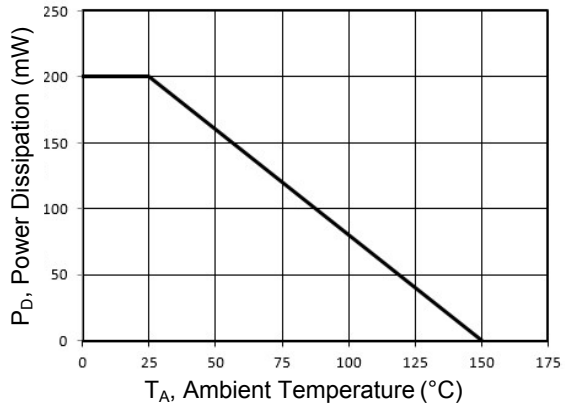
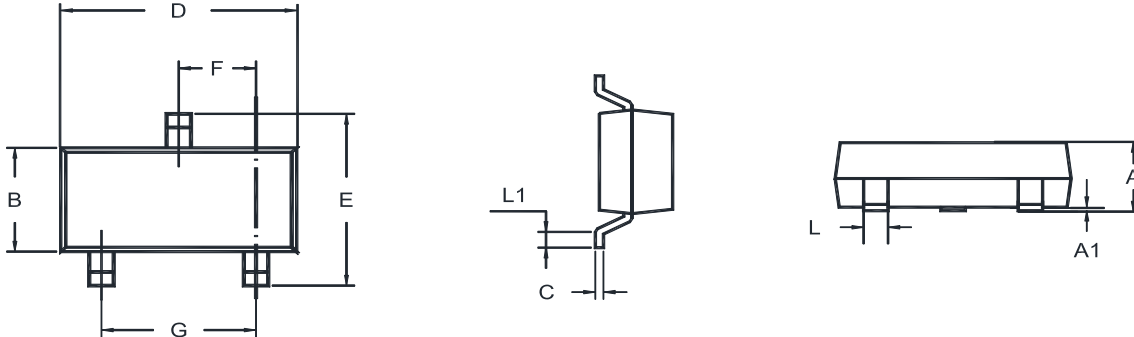


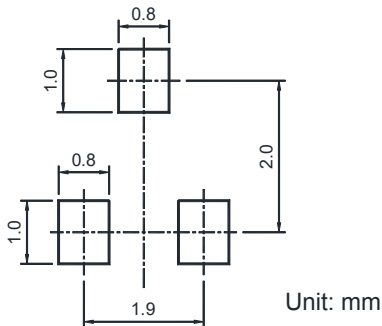
Figure 7. Power Derating Curve

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.890	1.200	0.035	0.047
A1	0.013	0.100	0.001	0.004
B	1.200	1.400	0.047	0.055
C	0.080	0.190	0.003	0.007
D	2.800	3.040	0.110	0.120
E	2.200	2.600	0.087	0.102
F	0.890	1.020	0.035	0.040
G	1.780	2.040	0.070	0.080
L	0.370	0.510	0.015	0.020
L1	0.200 Min		0.008 Min	

Recommended Pad Layout



Order Information

Device	Package	Marking	Quantity	HSF Status
MMBT2412-Q	SOT-23	1E	3,000 pcs / Reel	RoHS Compliant
MMBT2412-R	SOT-23	1B	3,000 pcs / Reel	RoHS Compliant
MMBT2412-S	SOT-23	1B	3,000 pcs / Reel	RoHS Compliant