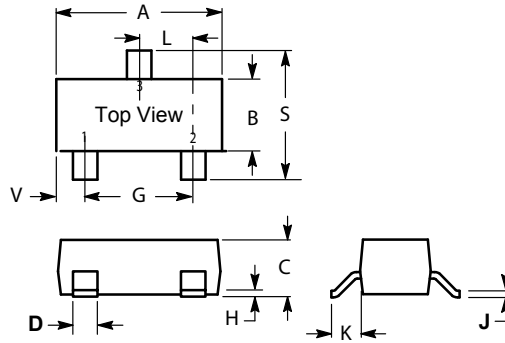
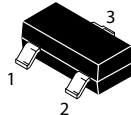
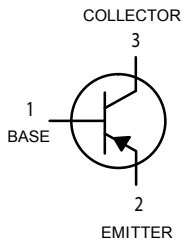


RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free



SOT-23		
Dim	Min	Max
A	2.800	3.040
B	1.200	1.400
C	0.890	1.110
D	0.370	0.500
G	1.780	2.040
H	0.013	0.100
J	0.085	0.177
K	0.450	0.600
L	0.890	1.020
S	2.100	2.500
V	0.450	0.600
All Dimension in mm		

**MAXIMUM RATINGS\*  $T_A=25^\circ\text{C}$  unless otherwise noted**

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	-40	V
$V_{CE0}$	Collector-Emitter Voltage	-40	V
$V_{EB0}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current -Continuous	-0.6	A
$P_C$	Collector Dissipation	0.3	W
$T_J, T_{stg}$	Junction and Storage Temperature	-55-150	$^\circ\text{C}$

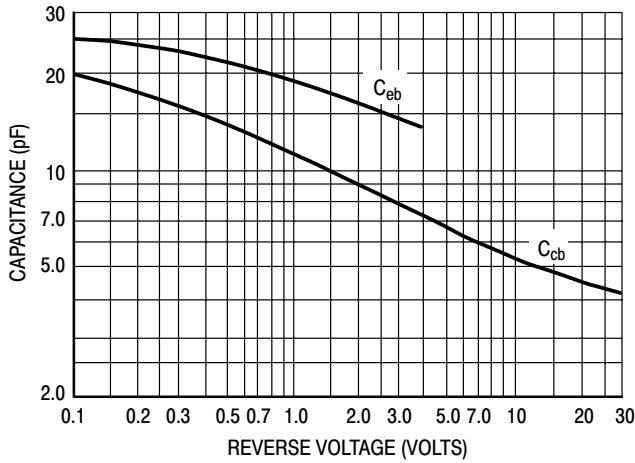
**ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\ \mu\text{A}, I_E=0$	-40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, I_B=0$	-40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-100\ \mu\text{A}, I_C=0$	-5		V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-35\text{V}, I_E=0$		-0.1	$\mu\text{A}$
Collector cut-off current	$I_{CEO}$	$V_{CE}=-35\text{V}, I_B=0$		-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0$		-0.1	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE}=-2\text{V}, I_C=-150\text{mA}$	100	300	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$		-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-150\text{mA}, I_B=-15\text{mA}$		-0.95	V
Transition frequency	$f_T$	$V_{CE}=-10\text{V}, I_C=-20\text{mA}$ $f = 100\text{MHz}$	200		MHz

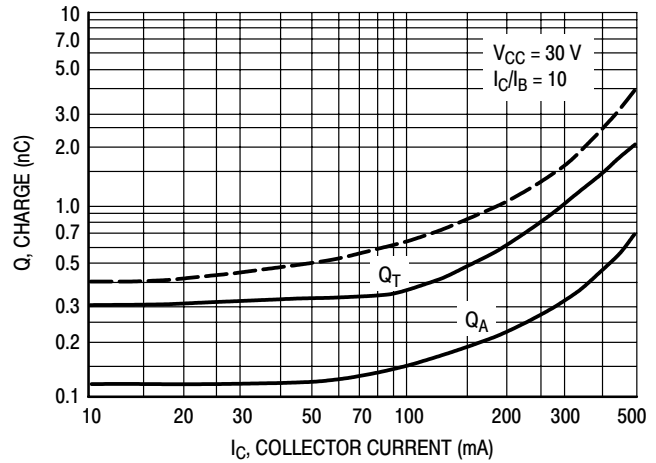
**MARKING: 2T**

**TRANSIENT CHARACTERISTICS**

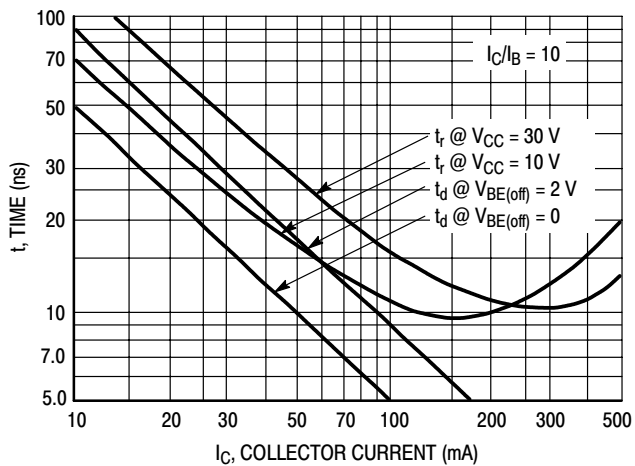
— 25°C    - - - 100°C



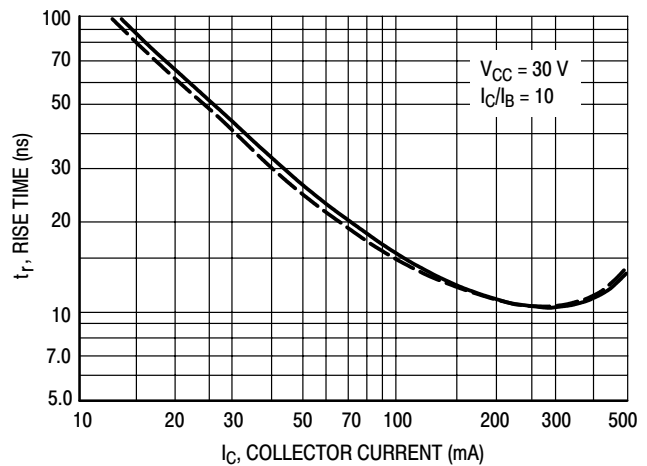
**Figure 3. Capacitances**



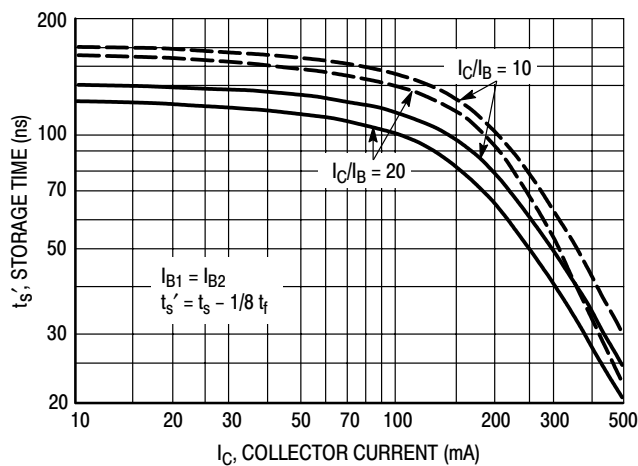
**Figure 4. Charge Data**



**Figure 5. Turn-On Time**



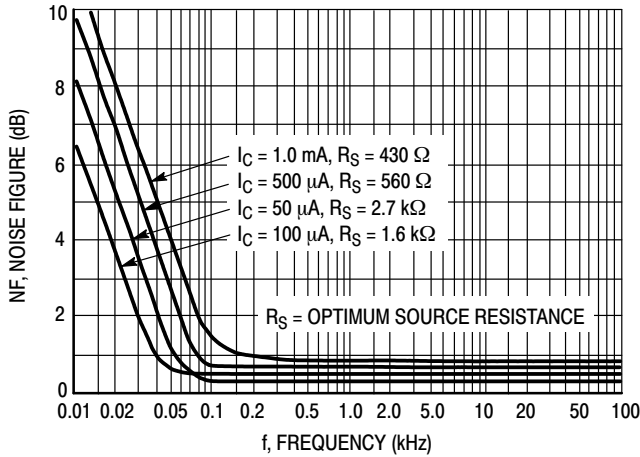
**Figure 6. Rise Time**



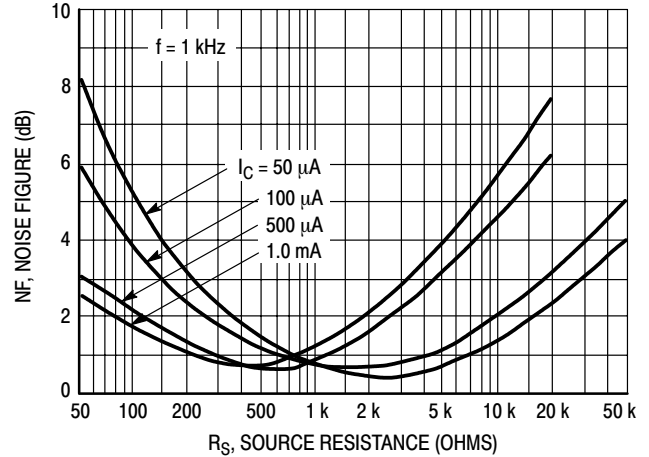
**Figure 7. Storage Time**

**SMALL-SIGNAL CHARACTERISTICS NOISE FIGURE**

$V_{CE} = -10 \text{ Vdc}$ ,  $T_A = 25^\circ\text{C}$ ; Bandwidth = 1.0 Hz



**Figure 8. Frequency Effects**

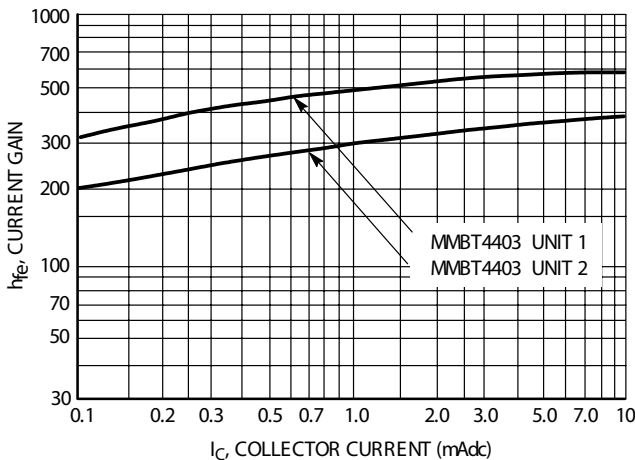


**Figure 9. Source Resistance Effects**

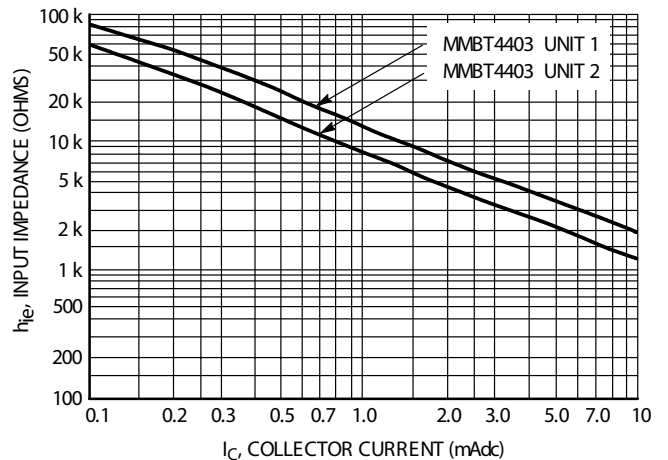
**h PARAMETERS**

$V_{CE} = 10 \text{ Vdc}$ ,  $f = 1.0 \text{ kHz}$ ,  $T_A = 25^\circ\text{C}$

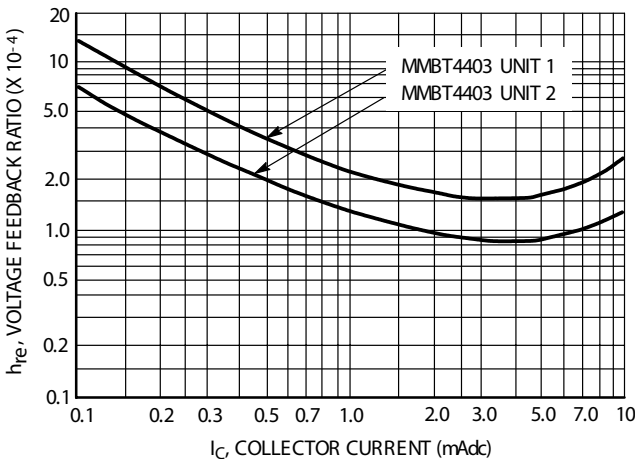
This group of graphs illustrates the relationship between  $h_{fe}$  and other  $h^\circ$  parameters for this series of transistors. To obtain these curves, a high-gain and a low-gain unit were selected from the MMBT4403 lines, and the same units were used to develop the correspondingly numbered curves on each graph.



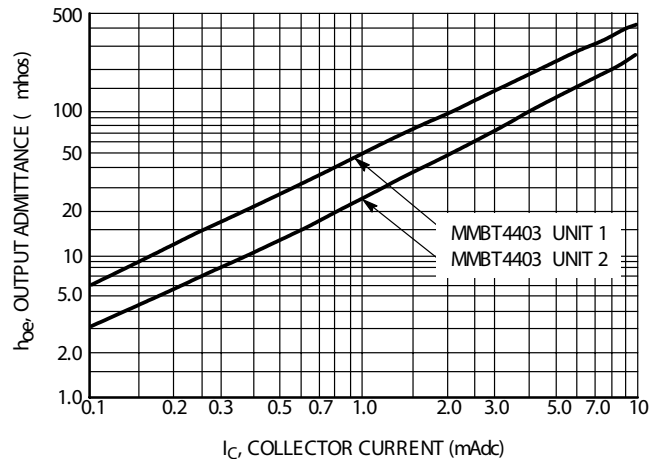
**Figure 10. Current Gain**



**Figure 11. Input Impedance**

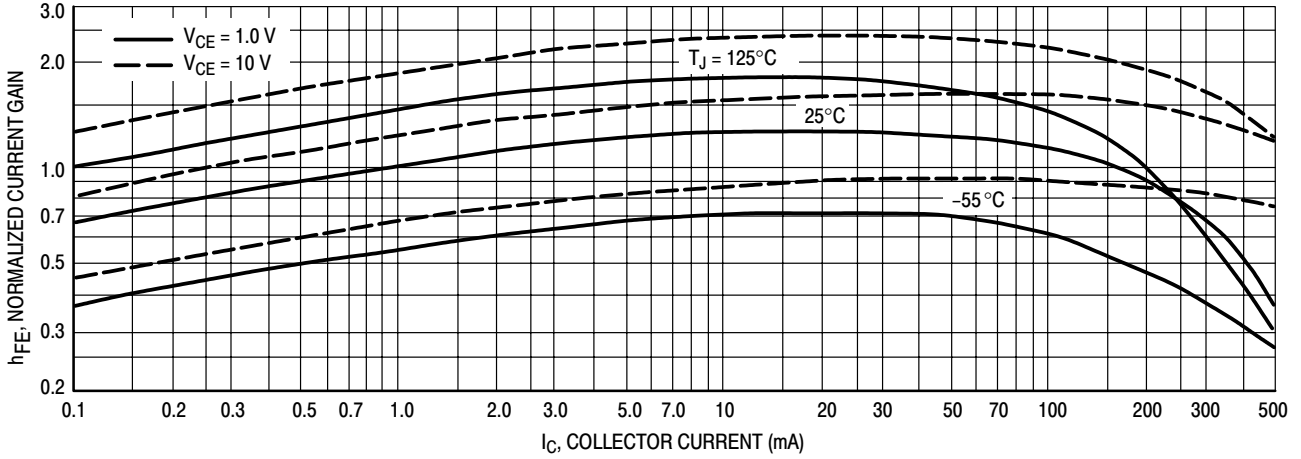


**Figure 12. Voltage Feedback Ratio**

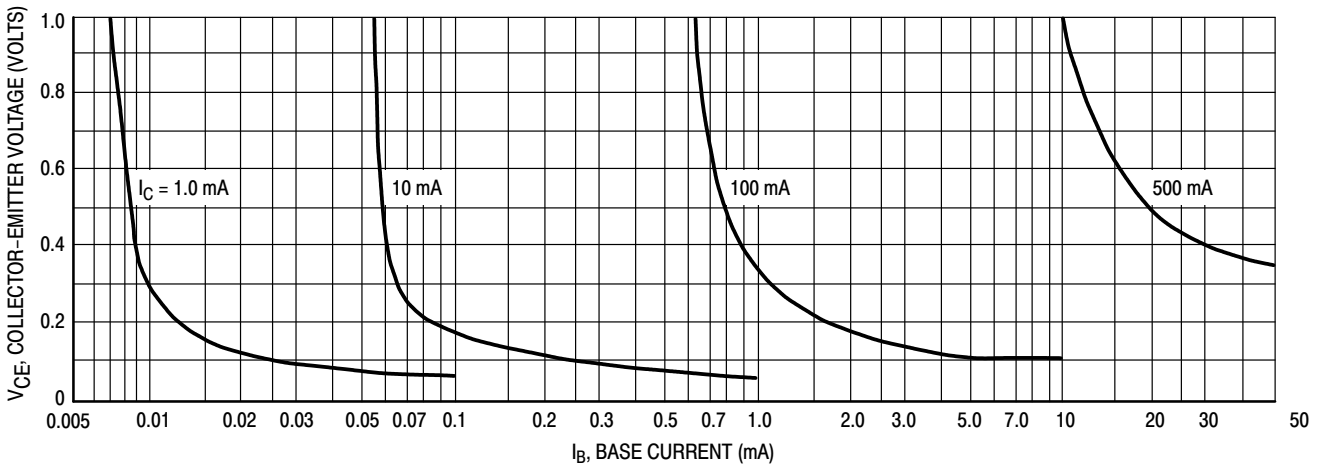


**Figure 13. Output Admittance**

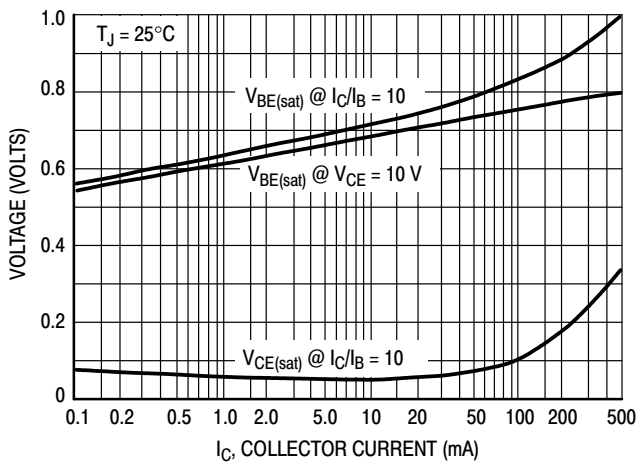
**STATIC CHARACTERISTICS**



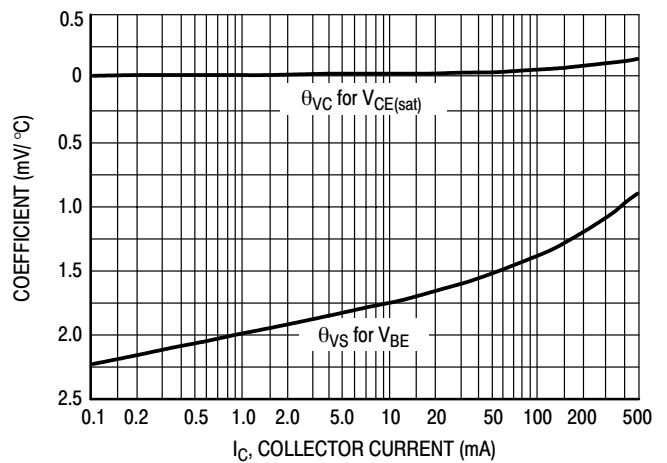
**Figure 14. DC Current Gain**



**Figure 15. Collector Saturation Region**



**Figure 16. "On" Voltages**



**Figure 17. Temperature Coefficients**