

TRANSISTOR (NPN)

PRODUCT SUMMARY

SOT-23 Plastic-Encapsulate Transistors

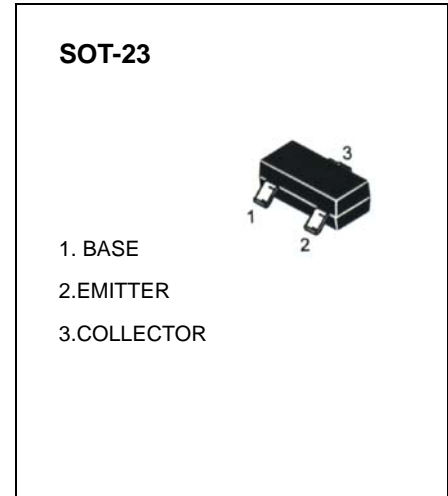
FEATURES

Epitaxial planar die construction
Complementary PNP Type available (MMBT2907A)

MARKING: 1P

MECHANICAL DATA

NA



MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CBO}	Collector-Base Voltage	75	V
V _{CEO}	Collector-Emitter Voltage	40	V
V _{EBO}	Emitter-Base Voltage	6	V
I _C	Collector Current -Continuous	600	mA
P _C	Collector Power Dissipation	350	mW
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55to+150	°C

ELECTRICAL CHARACTERISTICS

(Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=60V, I_E=0$			10	nA
Collector cut-off current	I_{CEX}	$V_{CE}=60V, V_{BE(off)}=3V$			10	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=3V, I_C=0$			0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=10V, I_C=150mA$	100		300	
	$h_{FE(2)}$	$V_{CE}=10V, I_C=0.1mA$	40			
	$h_{FE(3)}$	$V_{CE}=10V, I_C=500mA$	42			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500mA, I_B=50mA$ $I_C=150mA, I_B=15mA$			1 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=500mA, I_B=50mA$ $I_C=150mA, I_B=15mA$	0.6		2.0 1.2	V
Transition frequency	f_T	$V_{CE}=20V, I_C=20mA$ $f=100MHz$	300			MHz
Delay time	t_d	$V_{CC}=30V, V_{BE(off)}=-0.5V$			10	nS
Rise time	t_r	$I_C=150mA, I_{B1}=15mA$			25	nS
Storage time	t_S	$V_{CC}=30V, I_C=150mA$			225	nS
Fall time	t_f	$I_{B1}=-I_{B2}=15mA$			60	nS

CLASSIFICATION OF $h_{FE(1)}$

Rank	L	H
Range	100-200	200-300

TYPICAL CHARACTERISTICS

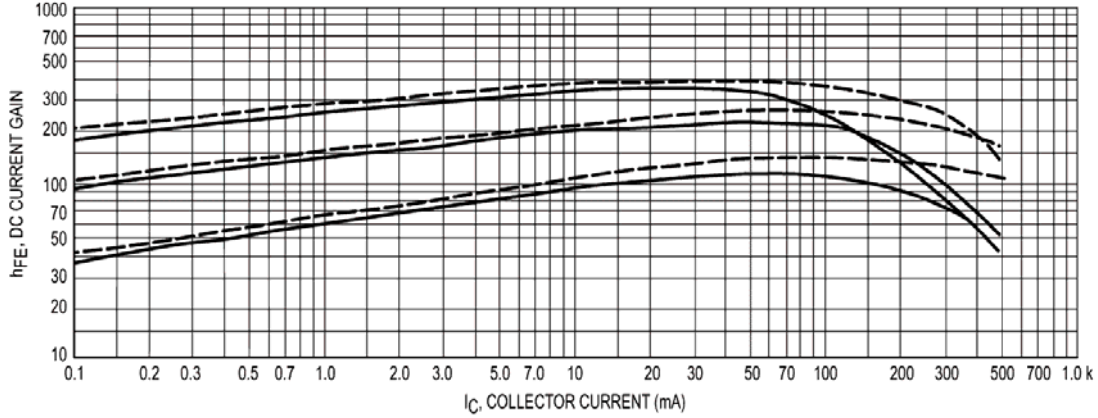


Figure 3. DC Current Gain

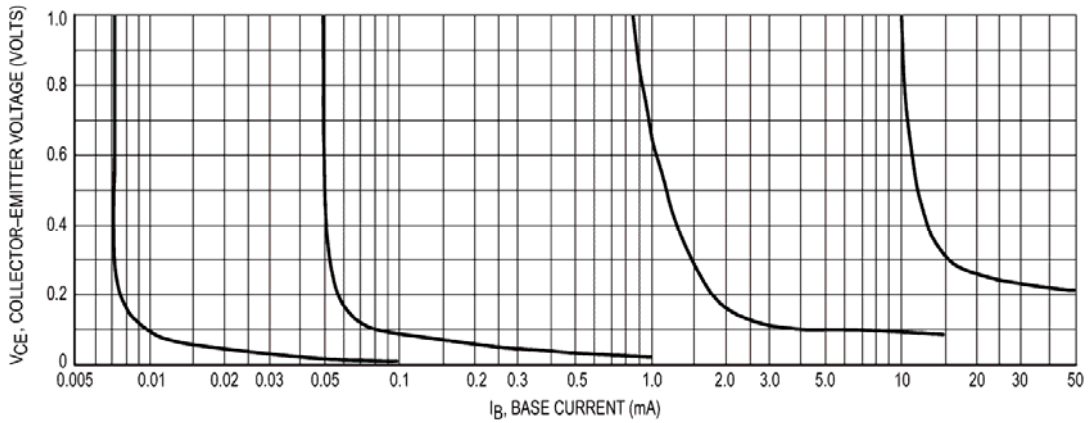


Figure 4. Collector Saturation Region

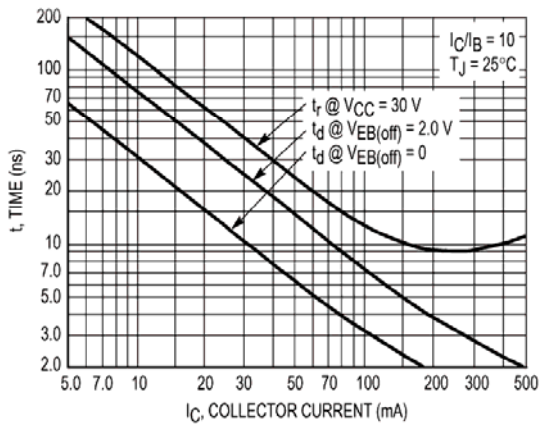


Figure 5. Turn-On Time

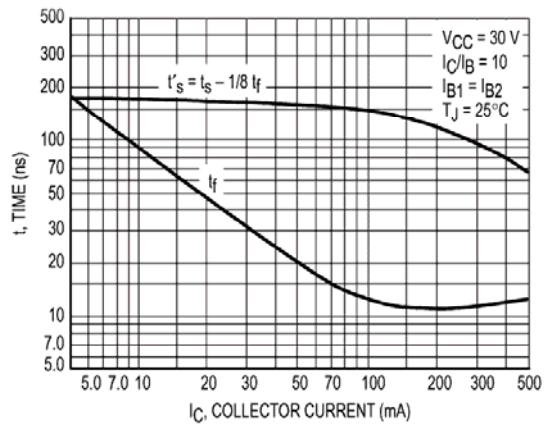
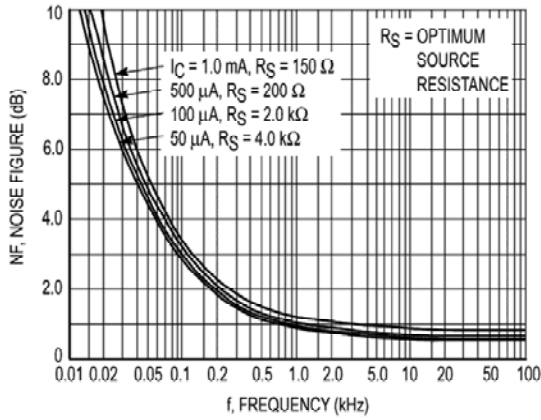
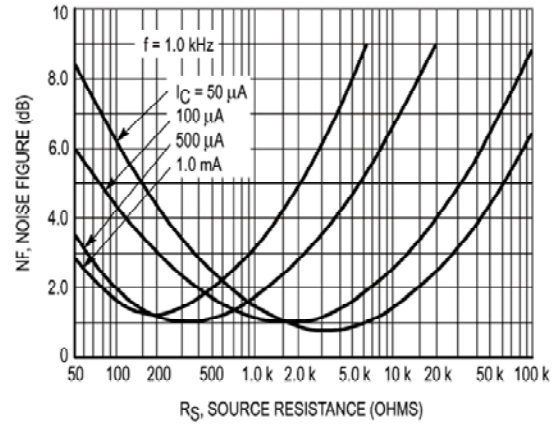
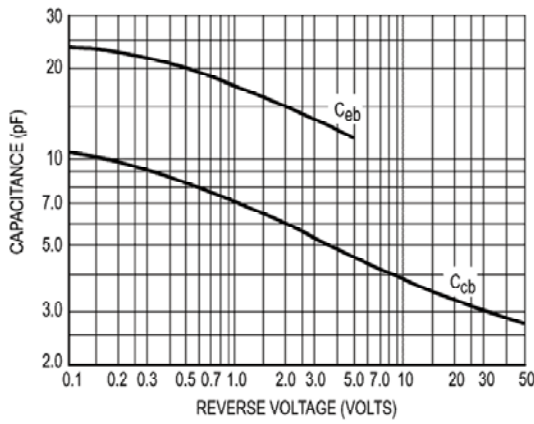
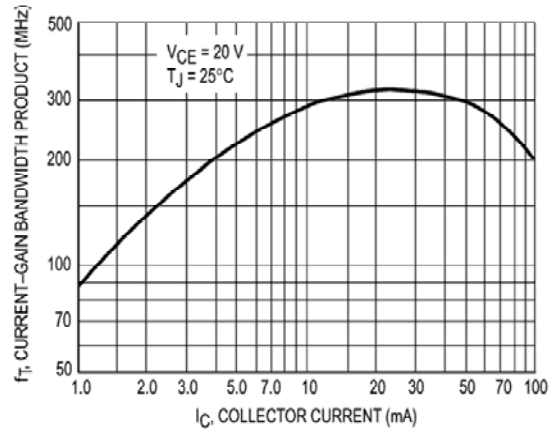
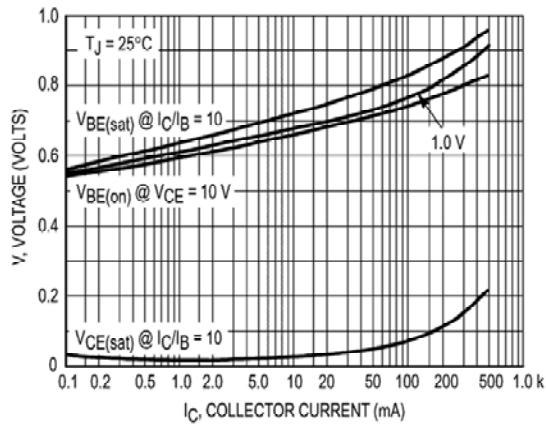
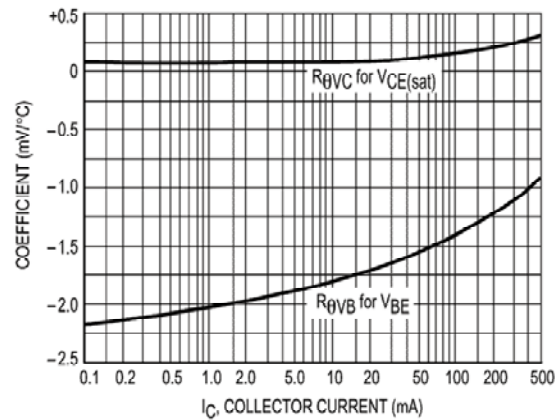


Figure 6. Turn-Off Time


Figure 7. Frequency Effects

Figure 8. Source Resistance Effects

Figure 9. Capacitances

Figure 10. Current-Gain Bandwidth Product

Figure 11. "On" Voltages

Figure 12. Temperature Coefficients

Information furnished by Silicon Standard Corporation is believed to be accurate and reliable. However, Silicon Standard Corporation makes no guarantee or warranty, expressed or implied, as to the reliability, accuracy, timeliness or completeness of such information and assumes no responsibility for its use, or for infringement of any patent or other intellectual property rights of third parties that may result from its use. Silicon Standard reserves the right to make changes as it deems necessary to any products described herein for any reason, including without limitation enhancement in reliability, functionality or design. No license is granted, whether expressly or by implication, in relation to the use of any products described herein or to the use of any information provided herein, under any patent or other intellectual property rights of Silicon Standard Corporation or any third parties.