RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

MMBT5401

SOT-23 BIPOLAR TRANSISTORS
TRANSISTOR(PNP)

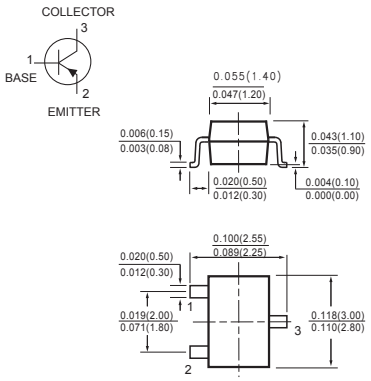
FEATURES

* Power dissipation
  P_{CM}: 0.3 W(Tamb=25°C)
* Collector current
  I_{CM}: - 0.6 A
* Collector-base voltage
  $V_{(BR)CBO}$: - 160 V
* Operating and storage junction temperature range
  T_J,Tstg: -55°C to+150°C

MECHANICAL DATA

* Case: Molded plastic
* Epoxy: UL 94V-O rate flame retardant
* Lead: MIL-STD-202E method 208C guaranteed
* Mounting position: Any
* Weight: 0.008 gram

SOT-23



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.
Single phase, half wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

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

RATINGS	SYMBOL	VALUE	UNITS
Max. Steady State Power Dissipation (1) @TA=25°C Derate above 25°C	P_D	300	mW
Max. Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (@ T_A = 25°C unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	-	-	417	°C/W

Notes : 1. Alumina=0.4*0.3*0.024in.99.5% alumina
2. "Fully ROHS Compliant", "100% Sn plating (Pb-free)".

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ELECTRICAL CHARACTERISTICS (@TA=25°C unless otherwise noted)

Chatacteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C= -1.0 mAdc, I_B= 0)	$V_{(BR)CEO}$	-150	-	Vdc
Collector-Base Breakdown Voltage (I_C= -100uAdc, I_E= 0)	$V_{(BR)CBO}$	-160	-	Vdc
Emitter-Base Breakdown Voltage (I_E= -10uAdc, I_C= 0)	$V_{(BR)EBO}$	-5.0	-	Vdc
Collector Cutoff Current (V_{CB}= -120Vdc,IE=0)	I_{CES}	-	-50	nAdc
(V_{CE}= -120Vdc, IE=0, TA= 100°C)		-	-50	uAdc
ON CHARACTERISTICS				
DC Current Gain (I_C= -1.0mAdc, V_{CE}= -5.0Vdc)	hFE	50	-	-
(I_C= -10mAdc, V_{CE}= -5.0Vdc)		60	240	
(I_C= -50mAdc, V_{CE}= -5.0Vdc)		50	-	
Collector-Emitter Saturation Voltage (I_C= -10mAdc, I_B= -1.0mAdc)	$V_{CE(sat)}$	-	-0.2	Vdc
(I_C= -50mAdc, I_B= -5.0mAdc)		-	-0.5	
Base-Emitter Saturation Voltage (I_C= -10Adc, I_B=-1.0mAdc)	$V_{BE(sat)}$	-	-1.0	Vdc
(I_C= -50mAdc, I_B= -5.0mAdc)		-	-1.0	
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain-Bandwidth Product (I_C= -10mAdc, V_{CE}= -10Vdc, f= 100MHz)	f_T	100	300	MHz
Output Capacitance (V_{CB}= -10Vdc, I_E= 0, f= 1.0MHz)	C_{obo}	-	6.0	pF
Small-Signal Current Gain (V_{CE}= -10Vdc, I_C= -1.0mAdc, f= 1.0kHz)	h_{fe}	40	200	-
Noise Figure (V_{CE}= -5.0Vdc, I_C= -200uAdc, RS=10Ω, f= 1.0kHz)	NF	-	8.0	dB

RATING AND CHARACTERISTICS CURVES (MMBT5401)

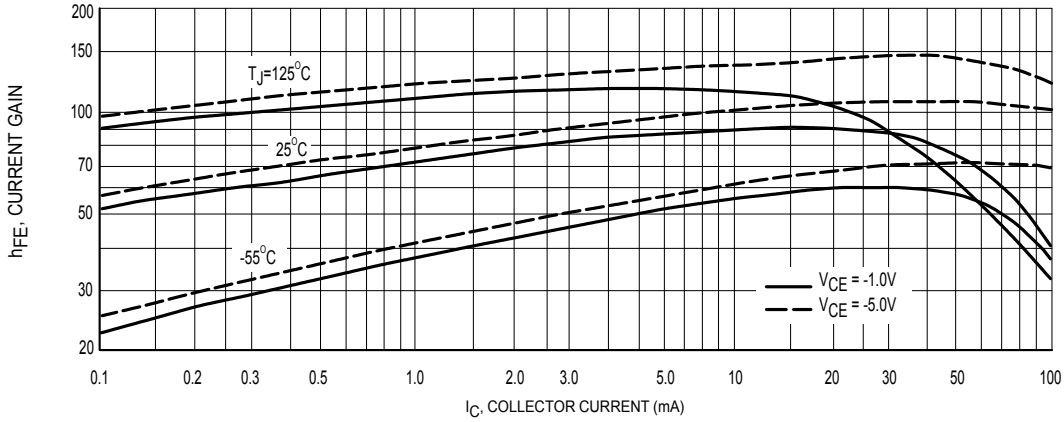

Figure 1. DC Current Gain

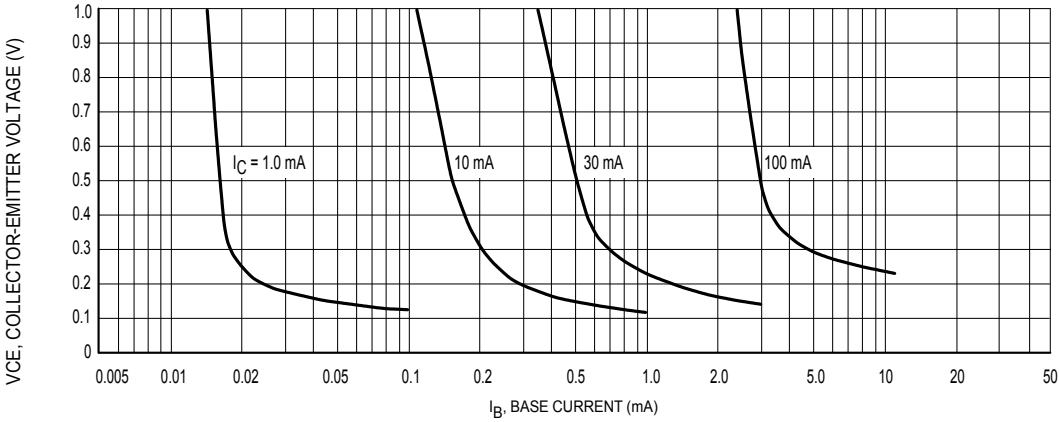

Figure 2. Collector Saturation Region

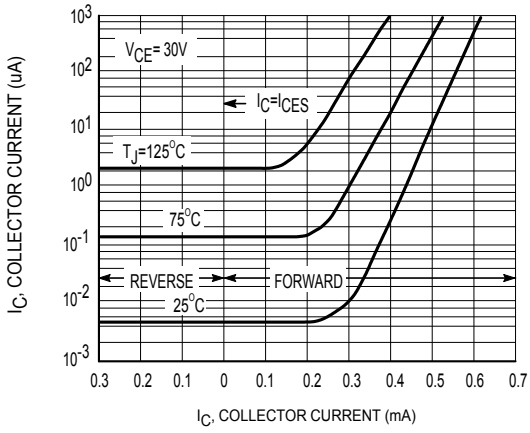

Figure 3. Collector Cut-Off Region

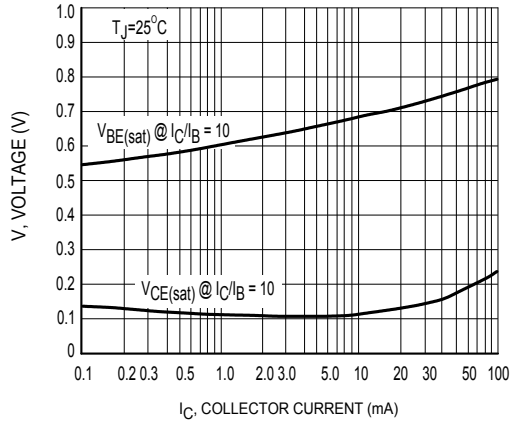

Figure 4. "On" Voltages

RATING AND CHARACTERISTICS CURVES (MMBT5401)

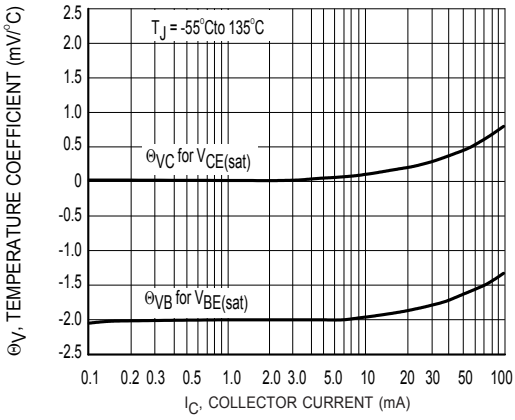

Figure 5.Temperature Coefficients

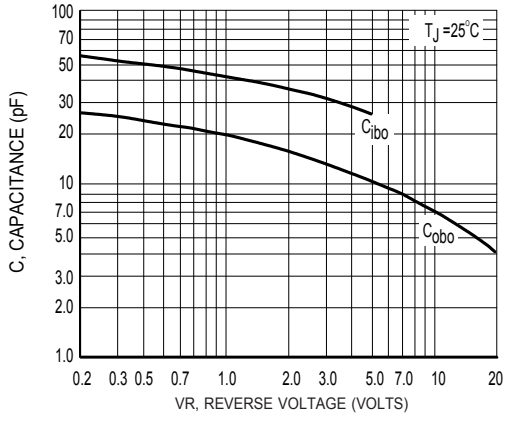

Figure 6.Capacitances

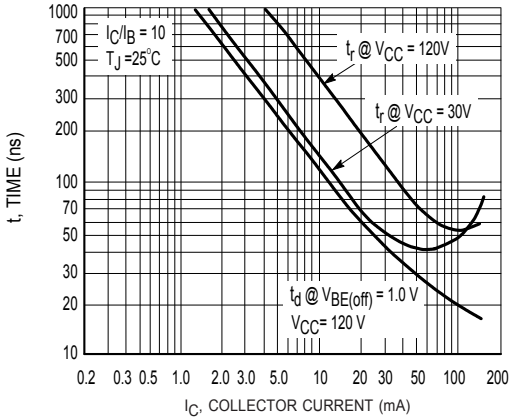

Figure 7.Turn-On Time

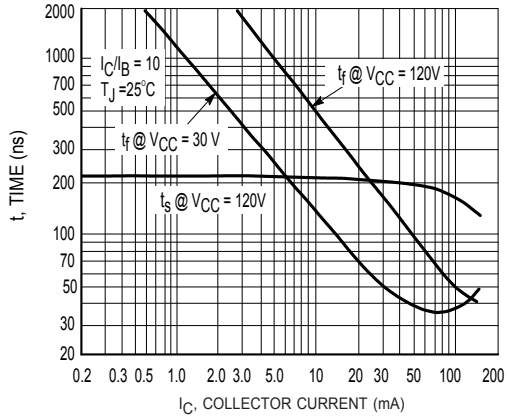

Figure 8.Turn-Off Time

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