RECTRON
SEMICONDUCTOR
TECHNICAL SPECIFICATION

MMST2222A

SOT-323 BIPOLAR TRANSISTORS

TRANSISTOR (NPN)

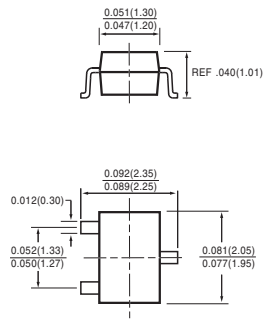
FEATURES

* Power dissipation
  Pcm: 0.2 W (Tamb=25°C)
* Collector current
  Icm: 0.6 A
* Collector-base voltage
  $V_{(BR)CBO}$: 75 V
* Operationg and storage junction temperature range
  T_J,T_{stg}: -55°Cto +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: 0.006 gram

SOT-323



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.

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

RATINGS	SYMBOL	VALUE	UNITS
Zener Current (see Table "Characteristics")	-	-	-
Max. Steady State Power Dissipation @T_A=25°C	P_D	200	mW
Max. Operating Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

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

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Thermal Resistance Junction to Ambient	R θ_{JA}	-	-	625	°C/W
Max. Instantaneous Forward Voltage at I_F= 10mA	V_F	-	-	-	Volts

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

Chatacteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C= 10mAdc, I_B= 0)	$V_{(BR)CEO}$	40	-	Vdc
Collector-Base Breakdown Voltage (I_C= 10μAdc, I_E= 0)	$V_{(BR)CBO}$	75	-	Vdc
Emitter-Base Breakdown Voltage (I_E= 10μAdc, I_C= 0)	$V_{(BR)EBO}$	6.0	-	Vdc
Collector Cutoff Current (V_{CE}= 60Vdc,$V_{EB(off)}$= 3.0Vdc	I_{CEX}	-	10	nAdc
Collector Cutoff Current (V_{CB}= 60Vdc, I_E= 0)	I_{CBO}	-	10	nAdc
(V_{CB}= 60Vdc, I_E= 0, TA= 125°C)		-	10	μAdc
Emitter Cutoff Current (V_{EB}= 3.0Vdc, I_C= 0)	I_{EBO}	-	10	μAdc
Base Cutoff Current (V_{CE}= 60Vdc, $V_{EB(off)}$= 3.0Vdc	I_{BL}	-	20	nAdc
ON CHARACTERISTICS (1)				
DC Current Gain (I_C= 100μA, V_{CE}= 10Vdc)	hFE	35	-	-
(I_C= 1.0mAdc, V_{CE}= 10Vdc)		50	-	
(I_C= 10mAdc, V_{CE}= 10Vdc)		75	-	
(I_C= 150mAdc, V_{CE}= 10Vdc)		100	300	
(I_C= 500mAdc, V_{CE}= 10Vdc)		40	-	
(I_C= 10mAdc, V_{CE}= 10Vdc,TA=-55°C)		50	-	
(I_C= 150mAdc, V_{CE}= 1.0Vdc)		35	-	
Collector-Emitter Saturation Voltage (I_C= 150mAdc, I_B= 15mAdc)	$V_{CE(sat)}$	-	0.3	Vdc
(I_C= 500mAdc, I_B= 50mAdc)		-	1.0	
Base-Emitter Saturation Voltage (I_C= 150mAdc, I_B= 15mAdc)	$V_{BE(sat)}$	0.6	1.2	Vdc
(I_C= 500mAdc, I_B= 50mAdc)		-	2.0	
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain-Bandwidth Product (I_C= 20mAdc, V_{CE}= 20Vdc, f= 100MHz)	f_T	300	-	MHz
Input Capacitance (V_{EB}=0.5Vdc, I_C= 0, f= 1.0MHz)	C_{ibo}	-	25	pF
Output Capacitance (I_E= 0, V_{CB}= 10Vdc, f= 1.0MHz)	C_{obo}	-	8	pF
Noise Figure (I_C= 100μAdc, V_{CE}= 10Vdc, R_S= 1.0kΩ, f= 1.0kHz)	NF	-	4.0	dB
SWITCHING CHARACTERISTICS				
Delay Time	(V_{CC}= 30Vdc, $V_{BE(off)}$= 0.5Vdc, I_C= 150mAdc, I_{B1}= 15mAdc)	t_d	-	10	ns
Rise Time		t_r	-	25	
Storage Time	(V_{CC}= 30Vdc, I_C= 150mAdc, I_{B1}= I_{B2}= 15mAdc)	t_s	-	225	ns
Fall Time		t_f	-	60	

NOTES : 1. Short duration test pulse used to minimize self-heating effect.