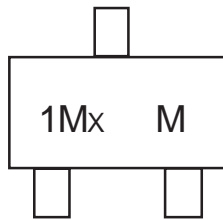


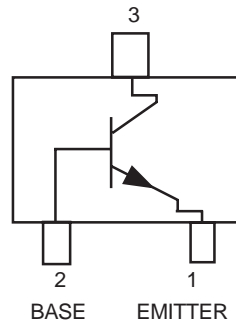
# NPN Low Voltage Output Amplifiers - Surface Mount

MARKING DIAGRAM

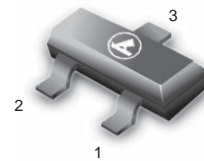


x = R for RT1  
S for ST1  
M = Date Code

COLLECTOR



**MSD1328-RT1**  
**MSD1328-ST1**



SC-59 SUFFIX  
CASE 318D

**MAXIMUM RATINGS** ( $T_A = 25\text{ }^\circ\text{C}$ )

Rating	Symbol	Value	Unit
Collector-Base Voltage	$V_{(BR)CBO}$	25	Vdc
Collector-Emitter Voltage	$V_{(BR)CEO}$	20	Vdc
Emitter-Base Voltage	$V_{(BR)EBO}$	12	Vdc
Collector Current - Continuous	$I_C$	500	mAdc
Collector Current - Peak	$I_{C(P)}$	1000	mAdc

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^\circ\text{C}$ )

Characteristic	Symbo	IMin	Max	Unit
Collector-Emitter Breakdown Voltage ( $I_C = 1.0\text{ mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	20	-	Vdc
Collector-Base Breakdown Voltage ( $I_C = 10\text{ }\mu\text{Adc}$ , $I_E = 0$ )	$V_{(BR)CBO}$	25	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\text{ }\mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	12	-	Vdc
Collector-Base Cutoff Current ( $V_{CB} = 25\text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	-	0.1	$\mu\text{Adc}$
DC Current Gain (Note 1)	$h_{FE}$			-
MSD1328-RT1 ( $V_{CE} = 2.0\text{ Vdc}$ , $I_C = 500\text{ mAdc}$ )		200	300	
MSD1328-ST1		300	500	
Collector-Emitter Saturation Voltage ( $I_C = 500\text{ mAdc}$ , $I_B = 20\text{ mAdc}$ )	$V_{CE(sat)}$	-	0.4	Vdc
Base-Emitter Saturation Voltage ( $I_C = 500\text{ mAdc}$ , $I_B = 50\text{ mAdc}$ )	$V_{BE(sat)}$	-	1.2	Vdc

1. Pulse Test: Pulse Width  $\leq 300\text{ }\mu\text{s}$ , D.C. 3 2%.