



M28S

NPN SILICON TRANSISTOR

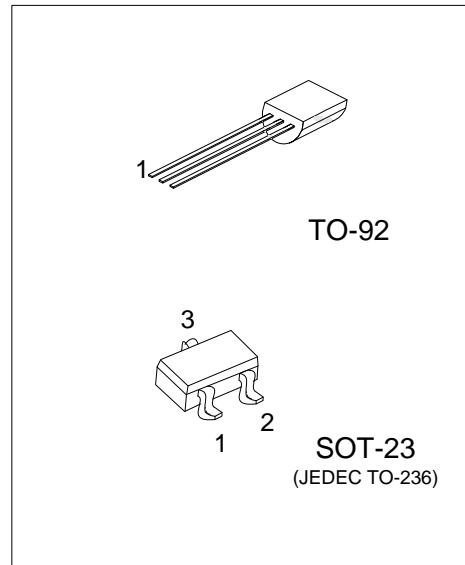
AUDIO OUTPUT DRIVER AMPLIFIER

■ FEATURES

- * Excellent HFE Linearity
- * High DC Current Gain
- * High Power Dissipation

■ APPLICATION

- * Audio Output Driver Amplifier
- * General Purpose Switch



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
M28SL-x-AE3-R	M28SG-x-AE3-R	SOT-23	B	E	C	Tape Reel
M28SL-x-T92-B	M28SG-x-T92-B	TO-92	E	C	B	Tape Box
M28SL-x-T92-K	M28SG-x-T92-K	TO-92	E	C	B	Bulk

Note: Pin Assignment: B: Base E: Emitter C: Collector

<p>M28SG-x-AE3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Rank (4) Green Package 	<ul style="list-style-type: none"> (1) B: Tape Box, K: Bulk, R: Tape Reel (2) AB3: SOT-23, T92: TO-92 (3) x: refer to Classification of h_{FE1} (4) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

SOT-23	TO-92
<p>L: Lead Free G: Halogen Free</p>	<p>UTC M28S Rank ← → Date Code L: Lead Free G: Halogen Free</p>

■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CB0}	40	V
Collector-emitter Voltage		V_{CE0}	20	V
Emitter-Base Voltage		V_{EB0}	6	V
Collector Current		I_C	1.25	A
Base Current		I_B	0.4	A
Power Dissipation ($T_A=25^\circ\text{C}$)	SOT-23	P_D	300	mW
	TO-92		850	mW
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Voltage		V_{CB0}	$I_C=0.1\text{mA}$	40			V
Collector-Emitter Voltage		V_{CE0}	$I_C=1\text{mA}$	20			V
Emitter-Base Voltage		V_{EB0}	$I_E=0.1\text{mA}$	6			V
Collector Cutoff Current		I_{CB0}	$V_{CB}=35\text{V}, I_E=0$			100	nA
Emitter Cutoff Current		I_{EB0}	$V_{EB}=5\text{V}, I_C=0$			100	nA
ON CHARACTERISTICS							
DC Current Gain (Note)	h_{FE1}	$V_{CE}=1\text{V}, I_C=1\text{mA}$	290				
	h_{FE2}	$V_{CE}=1\text{V}, I_C=0.1\text{A}$	300		1000		
	h_{FE3}	$V_{CE}=1\text{V}, I_C=0.3\text{A}$	300				
	h_{FE4}	$V_{CE}=1\text{V}, I_C=0.5\text{A}$	300				
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	$I_C=600\text{mA}, I_B=20\text{mA}$			0.55	V
SMALL-SIGNAL CHARACTERISTICS							
Current Gain Bandwidth Product		f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=1\text{MHz}$	100			MHz
Output Capacitance		C_{OB}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		9		pF

■ CLASSIFICATION OF h_{FE2}

RANK	B	C	D
RANGE	300-550	500-700	650-1000

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