



MJE13001

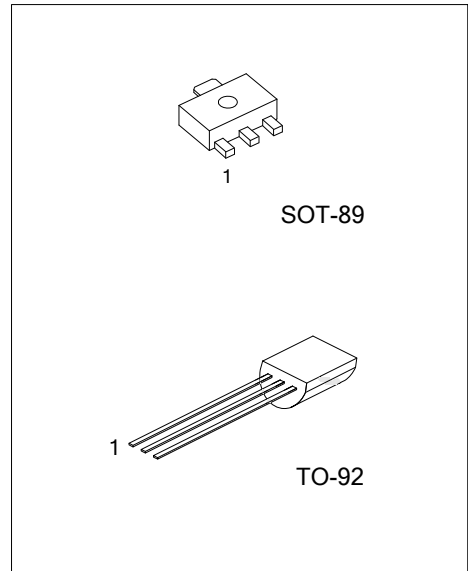
NPN SILICON TRANSISTOR

NPN SILICON POWER TRANSISTOR

■ FEATURES

* Collector-base voltage: $V_{(BR)CBO}=600V$

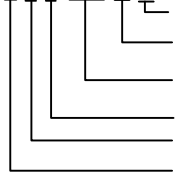
* Collector current: $I_C=0.2A$



■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
MJE13001-x-x-AB3-A -R	MJE13001L-x-x-AB3-A -R	MJE13001G-x-x-AB3-A-R	SOT-89	E	C	B	Tape Reel
MJE13001-x-x-AB3-F -R	MJE13001L-x-x-AB3-F -R	MJE13001G-x-x-AB3-F-R	SOT-89	B	C	E	Tape Reel
MJE13001-x-x-T92-B	MJE13001L-x-x-T92-B	MJE13001G-x-x-T92-B	TO-92	B	C	E	Tape Box
MJE13001-x-x-T92-K	MJE13001L-x-x-T92-K	MJE13001G-x-x-T92-K	TO-92	B	C	E	Bulk

MJE13001L-x-x-T92-A-B



- (1)Packing Type
- (2)Pin Assignment
- (3)Package Type
- (4)Rank
- (5)Ts
- (6)Lead Free

- (1) B: Tape Box, K: Bulk, R: Tape Reel
- (2) refer to Pin Assignment (for SOT-89)
- (3) AB3: SOT-89, T92: TO-92
- (4) x: refer to Classification of h_{FE1}
- (5) x: Storage Time of T_s
- (6) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage		V_{CEO}	400	V
Collector-Base Voltage		V_{CBO}	600	V
Emitter Base Voltage		V_{EBO}	7	V
Collector Current		I_C	200	mA
Collector Power Dissipation	SOT-89	P_C	550	mW
	TO-92		750	
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°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 Breakdown Voltage	BV_{CBO}	$I_C=100\ \mu\text{A}$, $I_E=0$	600			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=1\text{mA}$, $I_B=0$	400			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E=100\ \mu\text{A}$, $I_C=0$	7			V
Base-Emitter Voltage	V_{BE}	$I_E=100\text{mA}$			1.1	V
Collector Cutoff Cut-Off Current	I_{CBO}	$V_{CB}=600\text{V}$, $I_E=0\text{A}$			100	μA
Collector Emitter Cut-Off Current	I_{CEO}	$V_{CE}=400\text{V}$, $I_B=0$			200	μA
Emitter Cutoff Cut-Off Current	I_{EBO}	$V_{EB}=7\text{V}$, $I_C=0\text{A}$			100	μA

ON CHARACTERISTICS

DC Current Gain	h_{FE1}^*	$V_{CE}=20\text{V}$, $I_C=20\text{mA}$	10		70	
	h_{FE2}	$V_{CE}=10\text{V}$, $I_C=0.25\text{mA}$	5			
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=50\text{mA}$, $I_B=10\text{mA}$			0.5	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=50\text{mA}$, $I_B=10\text{mA}$			1.2	V

SMALL-SIGNAL CHARACTERISTICS

Current Gain Bandwidth Product	f_T	$I_C=20\text{mA}$, $V_{CE}=20\text{V}$, $f=1\text{MHz}$	8			MHz
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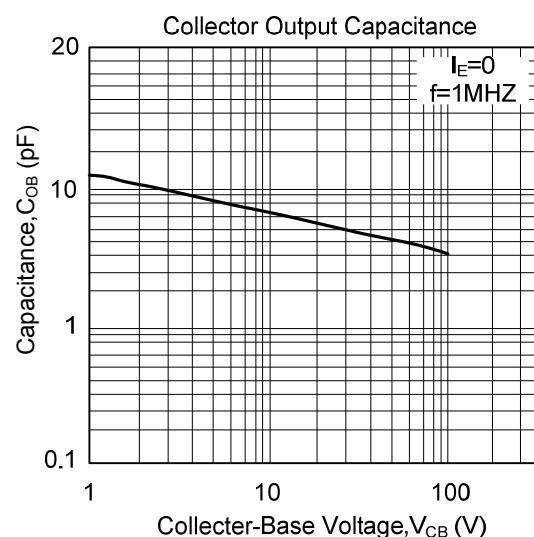
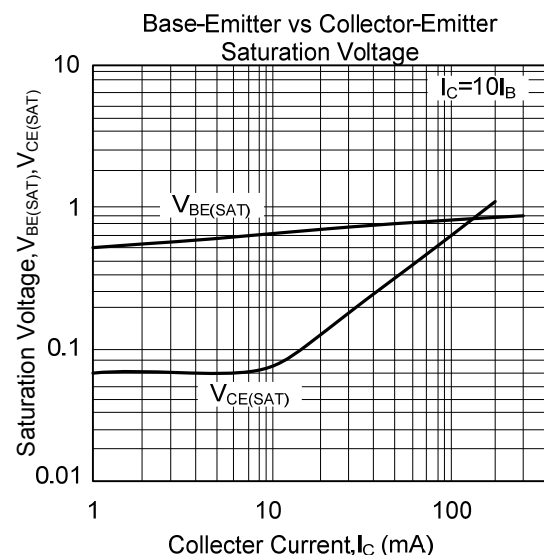
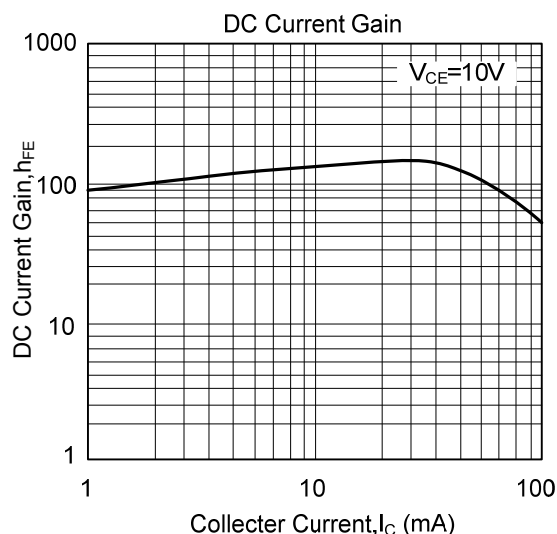
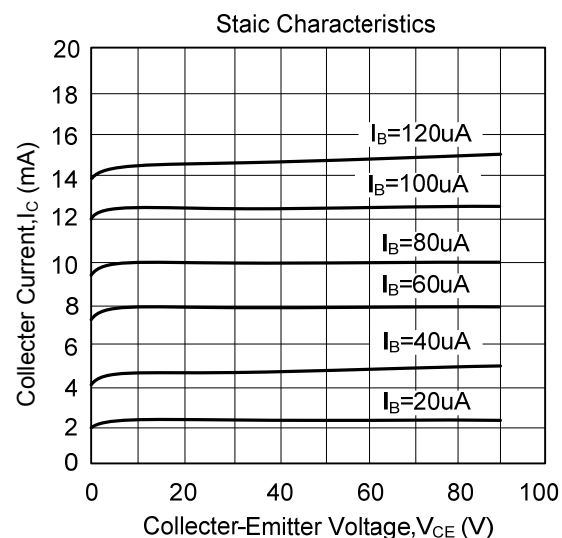
Resistive Load

Storage Time	t_S	$I_C=50\text{mA}$, $I_{B1}=-I_{B2}=5\text{mA}$,			1.5	μs
Fall Time	t_F	$V_{CC}=45\text{V}$			0.3	μs

■ CLASSIFICATION OF h_{FE1}^*

RANK	A	B	C	D	E	F	G	H	I	J	K	L
RANGE	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70

■ TYPICAL CHARACTERISTICS



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