



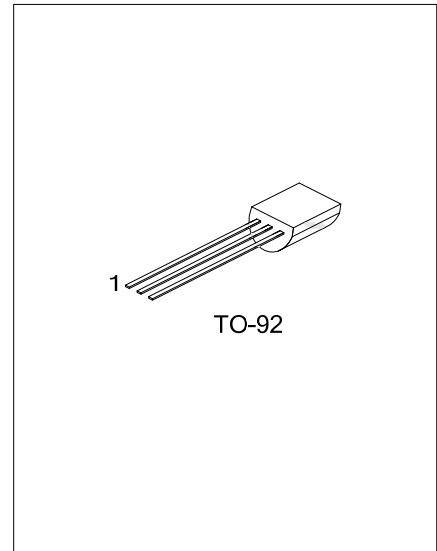
MJE13001

NPN SILICON TRANSISTOR

NPN SILICON POWER TRANSISTOR

■ FEATURES

- * Collector-base voltage: $V_{(BR)CBO}=600V$
- * Collector current: $I_C=0.2A$



Lead-free: MJE13001L
Halogen-free: MJE13001G

■ ORDERING INFORMATION

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

<p>MJE13001L-x-T92-B</p> <p>(1)Packing Type (2)Package Type (3)Rank (4)Lead Plating</p>	<p>(1) B: Tape Box, K: Tape Box (2) T92: TO-92 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ 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	P_C	750	mW
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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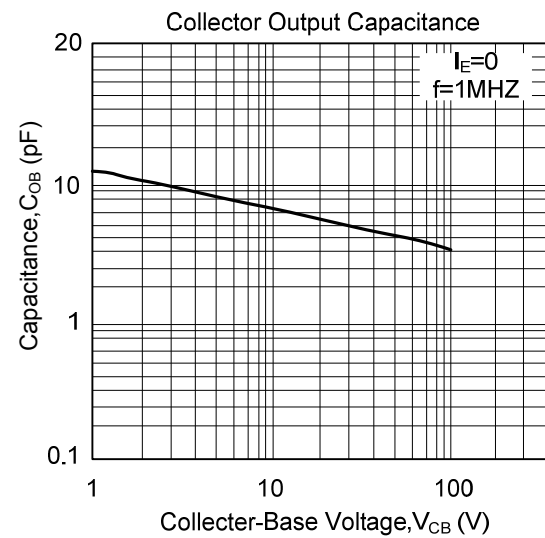
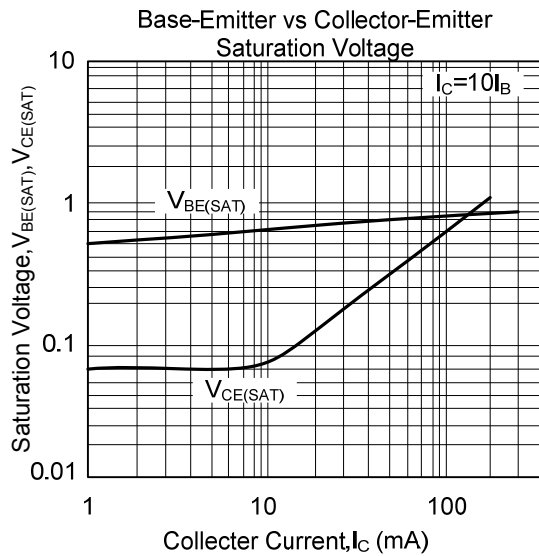
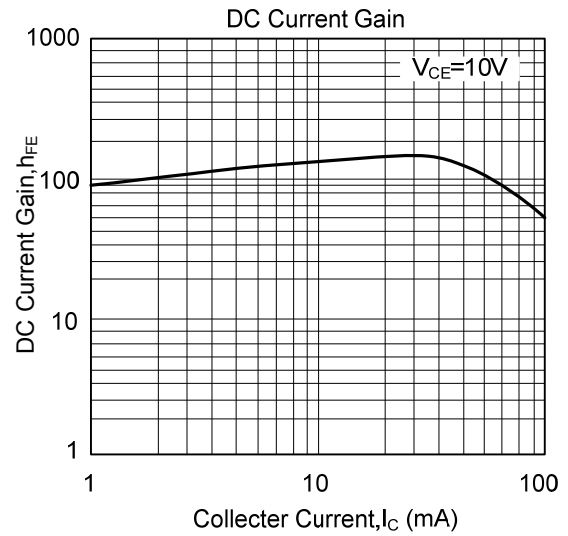
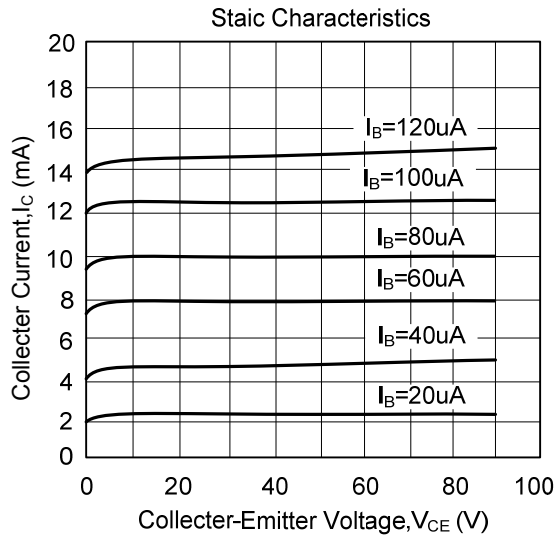
Resistive Load

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