

**Silicon NPN Power Transistors**

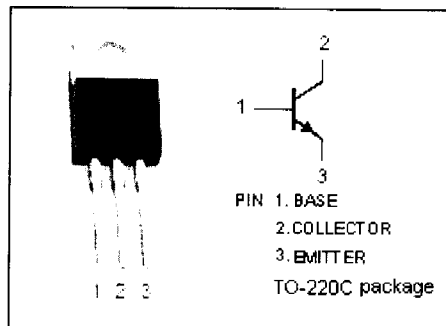
**MJE13070/13071**

**DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 400V(\text{Min})$ - MJE13070  
=  $450V(\text{Min})$ - MJE13071
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 3.0V(\text{Min})@I_C = 5A$

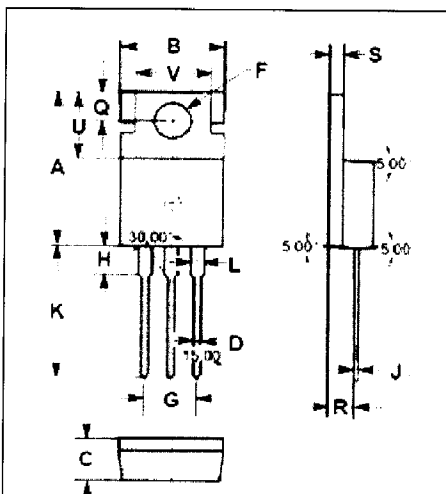
**APPLICATIONS**

- Designed for high-voltage, high-speed, power switching in inductive circuits, where fall time is critical. They are particularly suited for line-operated switchmode applications such as switching regulators, inverters, DC-DC converter, motor controls, solenoid drive and deflection circuits.



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

SYMBOL	PARAMETER		VALUE	UNIT
$V_{CEV}$	Collector-Emitter Voltage	MJE13070	650	V
		MJE13071	750	
$V_{CEO}$	Collector-Emitter Voltage	MJE13070	400	V
		MJE13071	450	
$V_{EBO}$	Emitter-Base Voltage		6	V
$I_C$	Collector Current-Continuous		5	A
$I_{CM}$	Collector Current-Peak		8	A
$I_B$	Base Current		2	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$		80	W
$T_J$	Junction Temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range		-65~150	$^\circ\text{C}$



DIM	mm	
	MIN	MAX
A	15.70	15.90
B	9.90	10.10
C	4.20	4.40
D	0.70	0.90
F	3.40	3.60
G	4.98	5.18
H	2.70	2.90
J	0.44	0.46
K	13.20	13.40
L	1.10	1.30
Q	2.70	2.90
R	2.50	2.70
S	1.29	1.31
U	6.45	6.65
V	8.66	8.86

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	1.56	$^\circ\text{C/W}$

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



## Silicon NPN Power Transistors

## MJE13070/13071

### ELECTRICAL CHARACTERISTICS

$T_C=25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	MJE13070	$I_C = 0.1\text{A}; I_B = 0$	400		V
		MJE13071		450		
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage		$I_C = 3\text{A}; I_B = 0.6\text{A}$ $I_C = 3\text{A}; I_B = 0.6\text{A}; T_C = 100^\circ\text{C}$		1.0 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage		$I_C = 5\text{A}; I_B = 1\text{A}$		3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage		$I_C = 3\text{A}; I_B = 0.6\text{A}$ $I_C = 3\text{A}; I_B = 0.6\text{A}; T_C = 100^\circ\text{C}$		1.5 1.5	V
$I_{CEV}$	Collector Cutoff Current		$V_{CEV} = \text{Rated Value}; V_{BE(off)} = 1.5\text{V}$ $V_{CEV} = \text{Rated Value}; V_{BE(off)} = 1.5\text{V}; T_C = 100^\circ\text{C}$		0.5 2.5	mA
$I_{EBO}$	Emitter Cutoff Current		$V_{EB} = 6\text{V}; I_C = 0$		1.0	mA
$h_{FE}$	DC Current Gain		$I_C = 3\text{A}; V_{CE} = 5\text{V}$	8		
$C_{OB}$	Output Capacitance		$I_E = 0; V_{CB} = 10\text{V}; f_{test} = 1.0\text{kHz}$		250	pF

#### Switching Times

$t_d$	Delay Time	$I_C = 3\text{A}; I_{B1} = 0.4\text{A}; V_{BE(off)} = 5\text{V};$ $V_{CC} = 250\text{V}; t_p = 30\ \mu\text{s}; \text{Duty Cycle} \leq 1\%$		0.05	$\mu\text{s}$
$t_r$	Rise Time			0.4	$\mu\text{s}$
$t_{stg}$	Storage Time			1.5	$\mu\text{s}$
$t_f$	Fall Time			0.5	$\mu\text{s}$