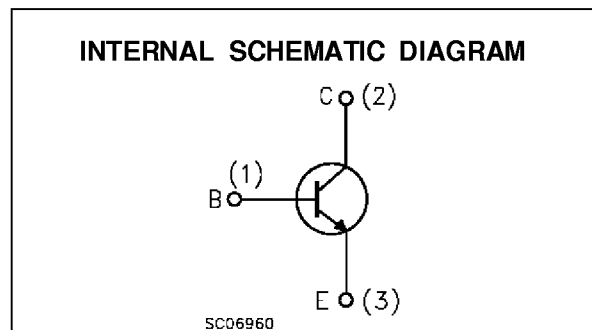
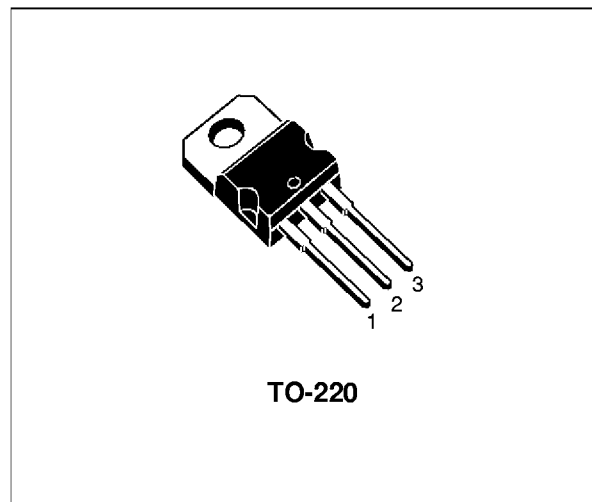


## SILICON NPN SWITCHING TRANSISTORS

- MJE13008 IS SGS-THOMSON PREFERRED SALESTYPE.

### DESCRIPTION

The MJE13008 and MJE13009 are multi-epitaxial mesa NPN transistor. They are mounted in Jedec TO-220 plastic package, intended for use in motor controls, switching regulators deflection circuits, etc.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		MJE13008	MJE13009	
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	300	400	V
$V_{CEV}$	Collector-Emitter Voltage	600	700	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	9		V
$I_C$	Collector Current	12		A
$I_{CM}$	Collector Peak Current ( $t_p \leq 10$ ms)	24		A
$I_B$	Base Current	6		A
$I_{BM}$	Base Peak Current ( $t_p \leq 10$ ms)	12		A
$I_E$	Emitter Current	18		A
$I_{EM}$	Emitter Peak Current	36		A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25$ °C	100		W
$T_{stg}$	Storage Temperature	-65 to 150		°C
$T_j$	Max. Operating Junction Temperature	150		°C

**THERMAL DATA**

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.25	°C/W
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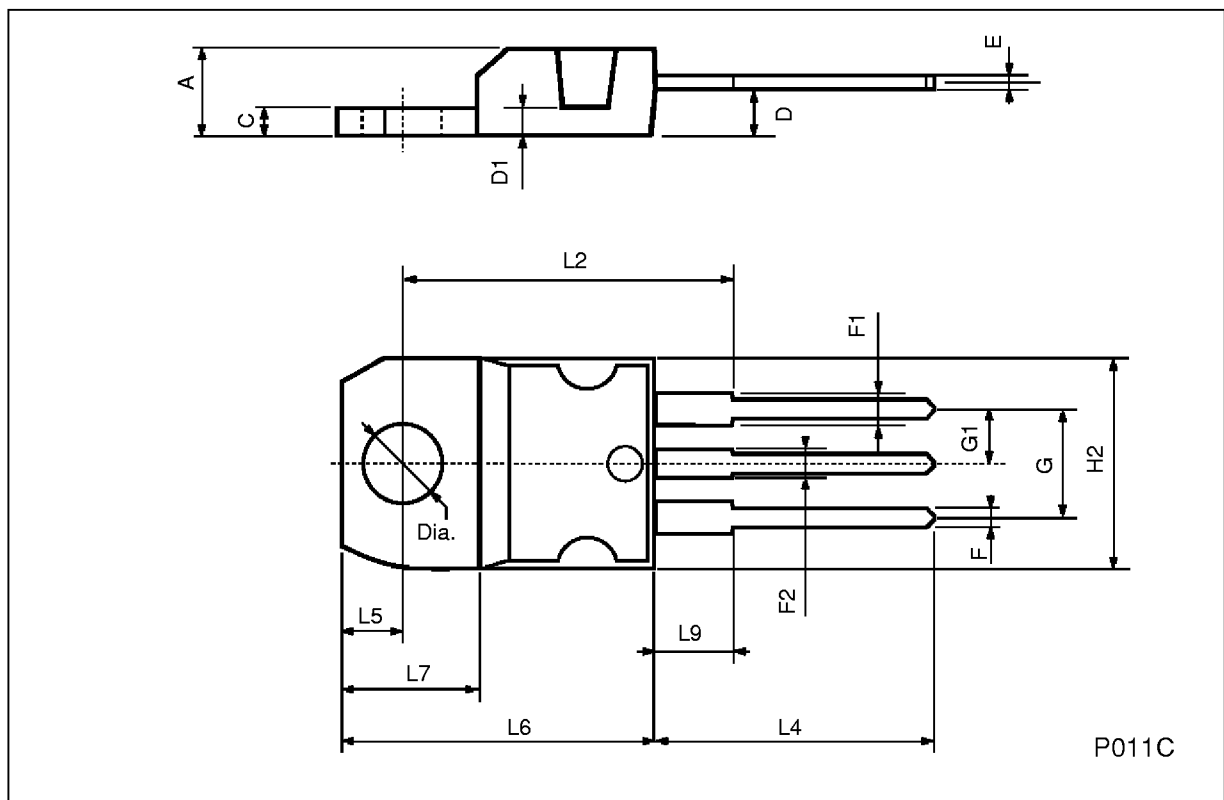
**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25\text{ °C}$  unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEV}$	Collector Cut-off Current	$V_{CEV} = \text{rated value}$ $V_{BE(off)} = 1.5\text{ V}$			1	mA
		$V_{CEV} = \text{rated value}$ $V_{EB(off)} = 1.5\text{ V}$ $T_{case} = 100\text{ °C}$			5	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 9\text{ V}$			1	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 10\text{ mA}$ $I_E = 0$	300 400			V V
		for <b>MJE13008</b> for <b>MJE13009</b>				
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 5\text{ A}$ $I_B = 1\text{ A}$			1	V
		$I_C = 8\text{ A}$ $I_B = 1.6\text{ A}$			1.5	V
		$I_C = 12\text{ A}$ $I_B = 3\text{ A}$			3	V
		$I_C = 8\text{ A}$ $I_B = 1.6\text{ A}$ $T_{case} = 100\text{ °C}$			2	V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 5\text{ A}$ $I_B = 1\text{ A}$			1.2	V
		$I_C = 8\text{ A}$ $I_B = 1.6\text{ A}$			1.6	V
		$I_C = 8\text{ A}$ $I_B = 1.6\text{ A}$ $T_{case} = 100\text{ °C}$			1.5	V
$h_{FE*}$	DC Current Gain	$I_C = 5\text{ A}$ $V_{CE} = 5\text{ V}$	8		40	
		$I_C = 8\text{ A}$ $V_{CE} = 5\text{ V}$	6		30	
$f_T$	Transistor Frequency	$I_C = 500\text{ mA}$ $V_{CE} = 10\text{ V}$	4			MHz
$C_{OB}$	Output Capacitance	$V_{CB} = 10\text{ A}$ $I_E = 0$ $f = 0.1\text{ MHz}$		180		pF
$t_{on}$ $t_s$ $t_f$	Turn-on Time Storage Time Fall Time	<b>RESISTIVE LOAD</b> $V_{CC} = 125\text{ V}$ $I_C = 8\text{ A}$ $I_{B1} = -I_{B2} = 1.6\text{ A}$ $t_p = 25\text{ }\mu\text{s}$ Duty Cycle $\leq 1\%$			1.1 3 0.7	ms $\mu\text{s}$ $\mu\text{s}$

\* Pulsed: Pulse duration = 300 $\mu\text{s}$ , duty cycle  $\leq 2\%$

TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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