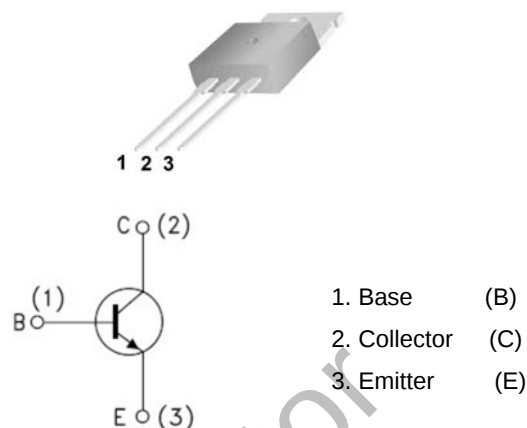


MJE13009-2

High Voltage Switch Mode Application

- High Speed Switching
- Suitable for Switching Regulator and Motor Control

TO-220



Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current (DC)	12	A
I_{CP}	Collector Current (Pulse)	24	A
I_B	Base Current	6	A
P_C	Collector Dissipation (T _C =25°C)	100	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 10mA, I_B = 0$	400			V
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 9V, I_C = 0$			1	mA
h_{FE}	* DC Current Gain	$V_{CE} = 5V, I_C = 5A$ $V_{CE} = 5V, I_C = 8A$	8 6		40 30	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 5A, I_B = 1A$ $I_C = 8A, I_B = 1.6A$ $I_C = 12A, I_B = 3A$			1 1.5 3	V V V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 5A, I_B = 1A$ $I_C = 8A, I_B = 1.6A$			1.2 1.6	V V
C_{ob}	Output Capacitance	$V_{CB} = 10V, f = 0.1MHz$		180		pF
f_T	Current Gain Bandwidth Product	$V_{CE} = 10V, I_C = 0.5A$	4			MHz
t_{ON}	Turn On Time	$V_{CC} = 125V, I_C = 8A$ $I_{B1} = - I_{B2} = 1.6A$ $R_L = 15,6\Omega$			1.1	μs
t_{STG}	Storage Time				3	μs
t_F	Fall Time				0.7	μs

* Pulse test: PW≤300μs, Duty cycle≤2%

Typical Characteristics

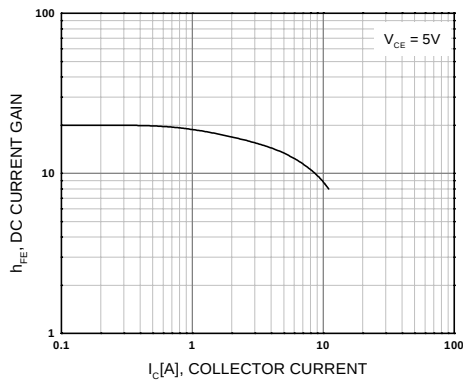


Figure 1. DC current Gain

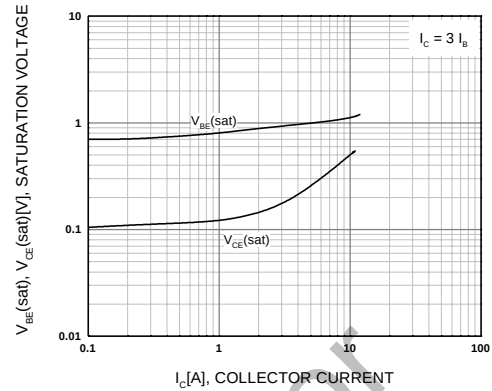


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

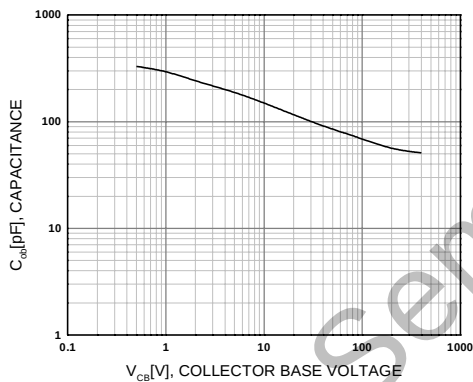


Figure 3. Collector Output Capacitance

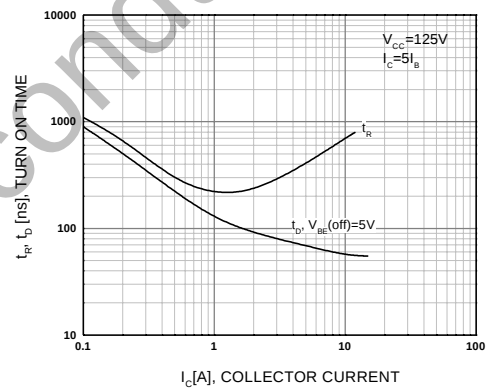


Figure 4. Turn On Time

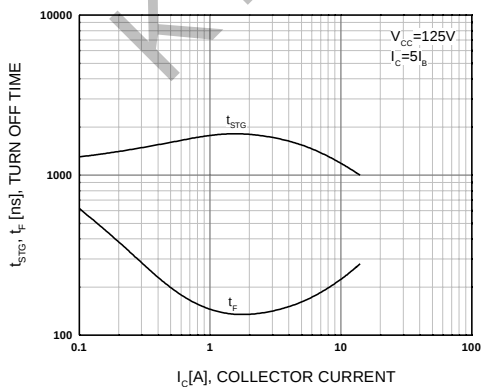


Figure 5. Turn Off Time

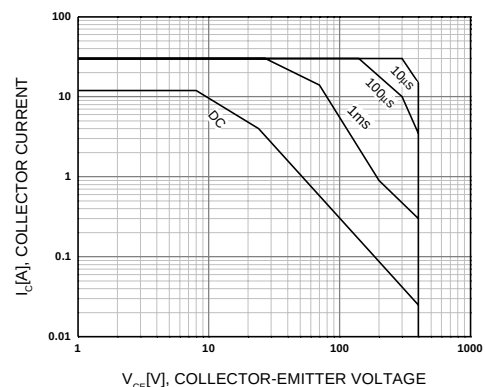


Figure 6. Forward Bias Safe Operating Area

Typical Characteristics

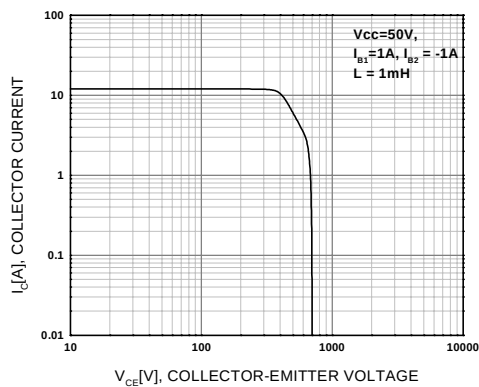


Figure 7. Reverse Bias Safe Operating Area

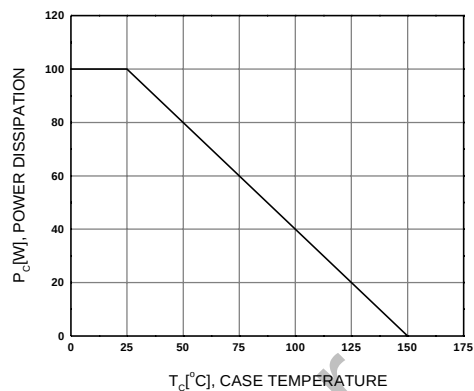


Figure 8. Power Derating

Package Dimension

TO-220

Unit: mm

