

MJE13004/13005

High Voltage Switch Mode Application

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



1.Base 2.Collector 3.Emitter

NPN Silicon Transistor

Absolute Maximum Ratings $T_C=25^{\circ}C$ unless otherwise noted

Symbol	Parameter	Value	Units	
V _{CBO}	Collector-Base Voltage		V	
	: MJE13004	600	V	
	: MJE13005	700		
V _{CEO}	Collector-Emitter Voltage		V	
020	: MJE13004	300	V	
	: MJE13005	400		
V _{EBO}	Emitter-Base Voltage	9	V	
I _C	Collector Current (DC)	4	Α	
I _{CP}	Collector Current (Pulse)	8	Α	
I _B	Base Current	2	Α	
P _C	Collector Dissipation (T _C =25°C)	75	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.	Тур.	Max.	Units
BV _{CEO} (sus)	Collector-Emitter Sustaining Voltage : MJE13004 : MJE13005	I _C = 10mA, I _B = 0	300 400			V V
I _{EBO}	Emitter Cut-off Current	$V_{EB} = 9V, I_{C} = 0$			1	mA
h _{FE}	*DC Current Gain	$V_{CE} = 5V, I_{C} = 1A$ $V_{CE} = 5V, I_{C} = 2A$	10 8		60 40	
V _{CE} (sat)	*Collector-Emitter Saturation Voltage	$I_C = 1A, I_B = 0.2A$ $I_C = 2A, I_B = 0.5A$ $I_C = 4A, I_B = 1A$			0.5 0.6 1	V V V
V _{BE} (sat)	*Base-Emitter Saturation Voltage	$I_C = 1A, I_B = 0.2A$ $I_C = 2A, I_B = 0.5A$			1.2 1.6	V V
C _{ob}	Output Capacitance	V _{CB} = 10V, f = 0.1MHz		65		pF
f _T	Current Gain Bandwidth Product	$V_{CE} = 10V, I_{C} = 0.5A$	4			MHz
t _{ON}	Turn ON Time	$V_{CC} = 125V, I_{C} = 2A$			0.8	μs
t _{STG}	Storage Time	$I_{B1} = -I_{B2} = 0.4A$			4	μs
t _F	Fall Time	$R_L = 62.5\Omega$			0.9	μs

^{*} Pulse test: PW≤300μs, Duty cycle≤2% Pulse

Typical Characteristics

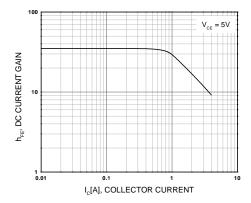


Figure 1. DC current Gain

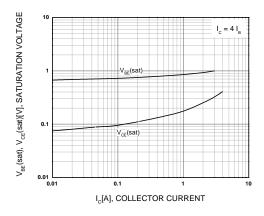


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

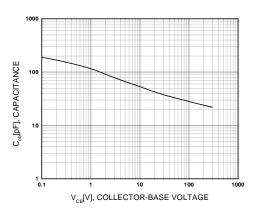


Figure 3. Collector Output Capacitance

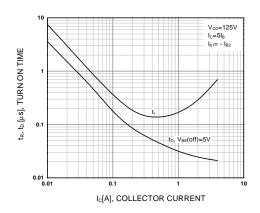


Figure 4. Turn On Time

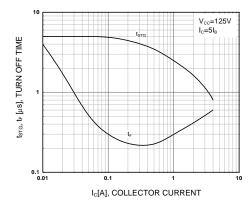


Figure 5. Turn Off Time

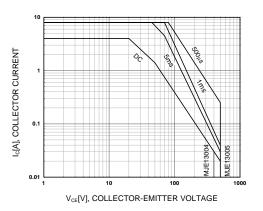


Figure 6. Safe Operating Area

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Typical Characteristics (Continued)

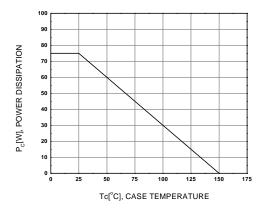
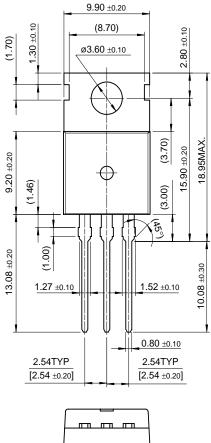


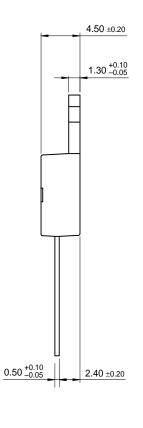
Figure 7. Power Derating

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Package Demensions

TO-220





10.00 ±0.20

Dimensions in Millimeters

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