

MJE13005I TRANSISTOR (NPN)

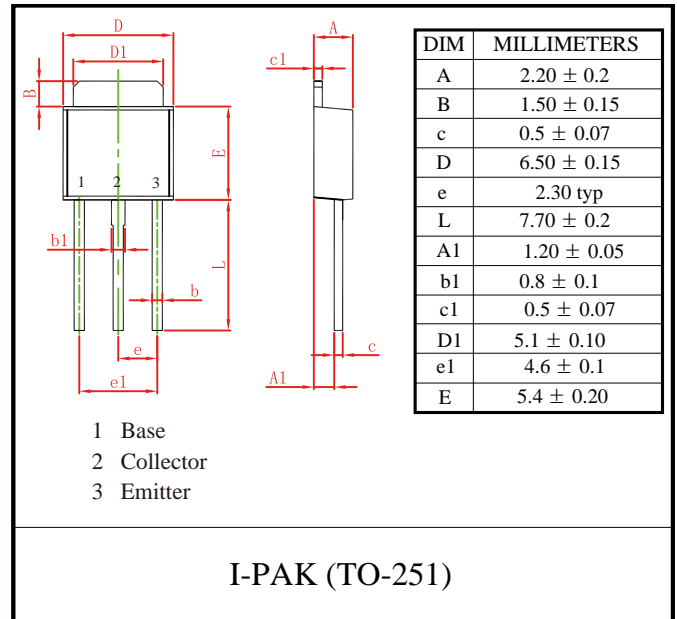
SWITCHING REGULATOR APPLICATION.
HIGH VOLTAGE SWITCHING APPLICATION.
HIGH SPEED DC- DC CONVERTER APPLICATION.
FLUORESCENT LIGHT BALLASTOR APPLICATION.

FEATURES

High Collector Voltage : $V_{CBO} = 700V$.

MAXIMUM RATINGS ($T_a=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Value	Unit
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 -Continuous	4	A
P_C	Collector Power Dissipation ($T_c=25^\circ C$)	40	W
T_J	Junction Temperature	150	$^\circ C$
T_{stg}	Storage Temperature	-55~150	$^\circ C$



ELECTRICAL CHARACTERISTICS ($T_a=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	9			V
Collector cut-off current	I_{CBO}	$V_{CB}=700V, I_E=0$			50	μA
Collector cut-off current	I_{CEO}	$V_{CE}=400V, I_B=0$			50	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=7V, I_C=0$			50	
DC current gain	$h_{FE(1)}$	$V_{CE}=5V, I_C=1A$	10		40	
	$h_{FE(2)}$	$V_{CE}=5V, I_C=200mA$	20		30	
	$h_{FE(3)}$	$V_{CE}=5V, I_C=10mA$	5			
	$h_{FE(4)}$	$V_{CE}=5V, I_C=4A$	8		40	
Collector-emitter saturation voltage	$V_{CE(sat)(1)}$	$I_C=1A, I_B=0.2A$			0.3	V
	$V_{CE(sat)(2)}$	$I_C=2A, I_B=0.4A$			0.35	V
	$V_{CE(sat)(3)}$	$I_C=4A, I_B=1A$			0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=2A, I_B=0.5A$			1.6	V
Diode forward voltage	V_{FEC}	$I_C=2A$			2	V
Transition frequency	f_T	$V_{CE}=10V, I_C=0.5A, f=1MHz$	5			MHz
Rise time	t_r	$I_C=250mA$			0.5	μs
Storage time	t_s	$I_C=250mA$	2.8		4.2	
Fall time	t_f	$I_C=250mA$			0.5	

CLASSIFICATION of $h_{FE(2)}$

Range	20- 25	25- 30

Typical Characteristics

Static Characteristic

