

### MJE13005D TRANSISTOR (NPN)

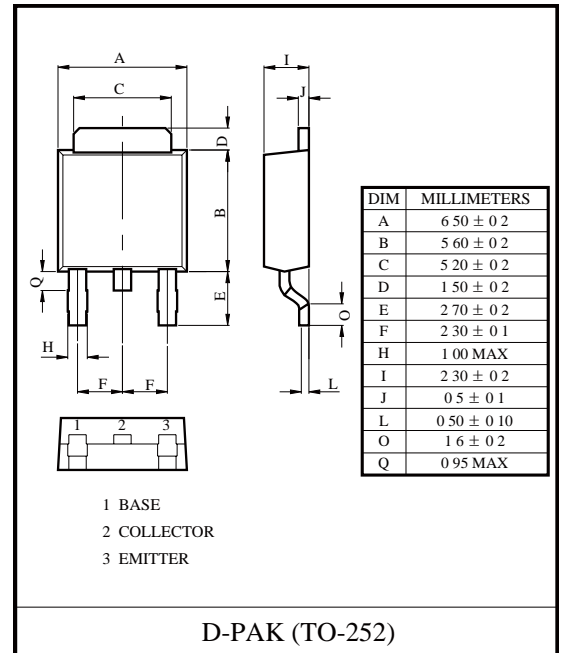
SWITCHING REGULATOR APPLICATION.  
HIGH VOLTAGE SWITCHING APPLICATION.  
HIGH SPEED DC- DC CONVERTER APPLICATION.  
FLUORESCENT LIGHT BALLASTOR APPLICATION.

#### 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	$\mu A$
Collector cut-off current	$I_{CEO}$	$V_{CE} = 400V, I_B = 0$			50	$\mu A$
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	$\mu s$
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

