



# SEMICONDUCTOR TECHNICAL DATA

# MJE13003B TRIPLE DIFFUSED NPN TRANSISTOR

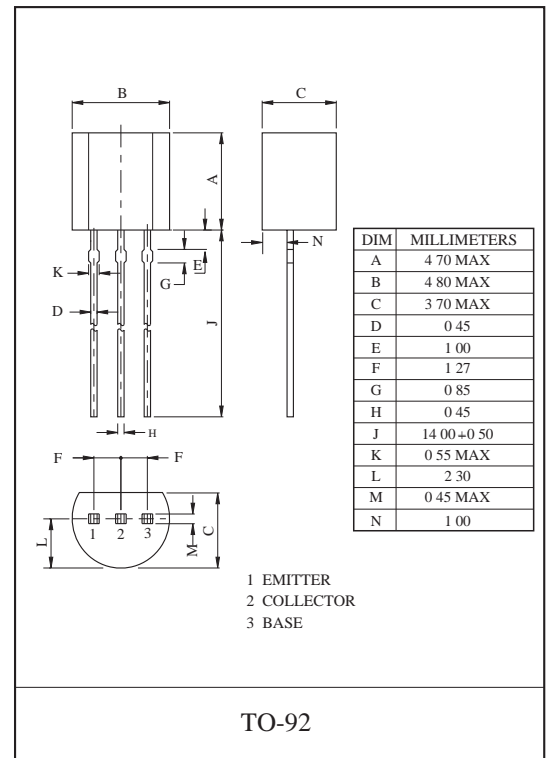
SWITCHING REGULATOR APPLICATION.  
HIGH VOLTAGE AND HIGH SPEED  
SWITCHING APPLICATION.

## FEATURES

- Excellent Switching Times  
:  $t_{on}=0.5\mu S(\text{Max.})$ ,  $t_f=0.7\mu S(\text{Max.})$ , at  $I_C=1A$
- High Collector Voltage :  $V_{CBO}=700V$ .

## MAXIMUM RATING ( $T_a=25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	700	V
Collector-Emitter Voltage	$V_{CEO}$	400	V
Emitter-Base Voltage	$V_{EBO}$	9	V
Collector Current	$I_{CM}$	1	A
Collector Power Dissipation	$P_C$	1	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$



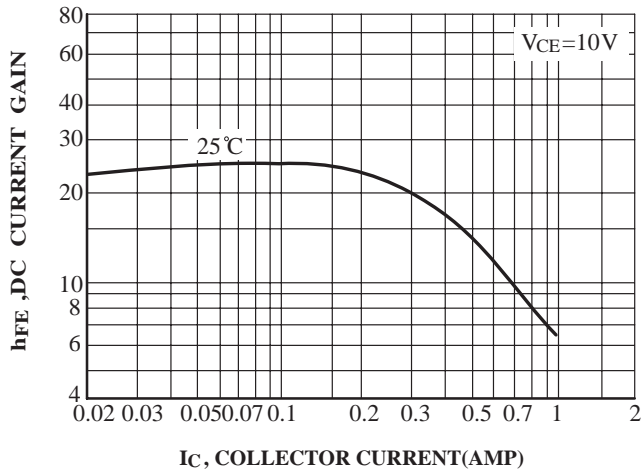
## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=9V$ , $I_C=0$	-	-	10	$\mu A$
DC Current Gain	$h_{FE}(1)$	$V_{CE}=10V$ , $I_C=10\mu$	5	-	-	
	$h_{FE}(2)$ (Note)	$V_{CE}=10V$ , $I_C=100mA$	9	-	38	
	$h_{FE}(3)$	$V_{CE}=10V$ , $I_C=500mA$	5	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100mA$ , $I_B=10mA$	-	-	0.45	V
		$I_C=200mA$ , $I_B=20mA$	-	-	1	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=50mA$ , $I_B=10mA$	-	-	0.9	V
		$I_C=100mA$ , $I_B=10mA$	-	-	1.1	
Transition Frequency	$f_T$	$V_{CE}=10V$ , $I_C=0.1A$	4	-	-	MHz
Turn-On Time	$t_{on}$	<p><math>I_{B1}=I_{B2}=0.2A</math> DUTY CYCLE <math>\leq 1\%</math></p>	-	-	0.5	$\mu S$
Storage Time	$t_{stg}$		-	-	5	$\mu S$
Fall Time	$t_f$		-	-	0.7	$\mu S$

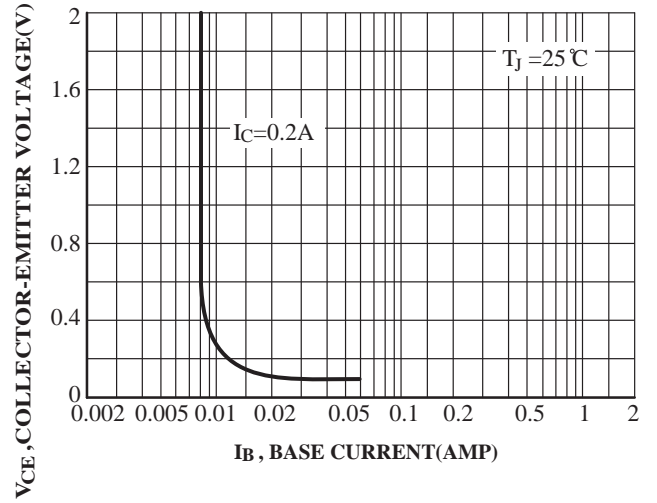
Note :  $h_{FE}$  Classification R:9~15, O:13~21, Y: 20~38



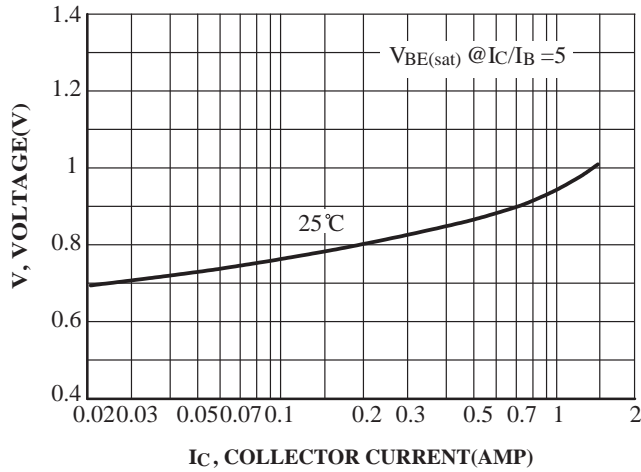
DC Current Gain



Collector Saturation



Base-Emitter Voltage



Collector-Emitter Saturation

