

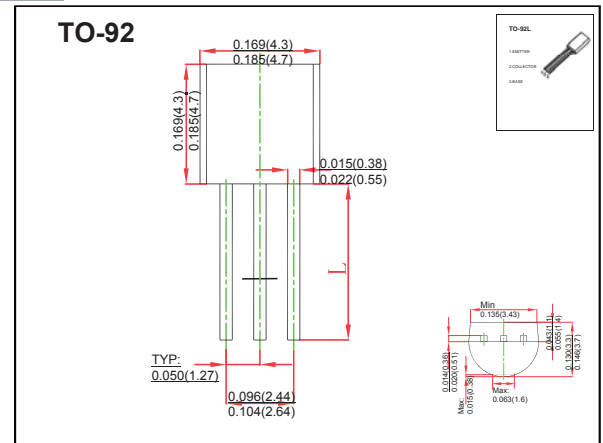
## TO-92 Plastic-Encapsulate Transistors

### FEATURES

- power switching applications
- TRANSISTOR( NPN )

### MECHANICAL DATA

- Case style: TO-92 molded plastic
- Mounting position: any



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (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	1.5	A
$P_C$	Collector Power Dissipation	0.9	W
$T_J$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature	-55 ~ 150	°C

### ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
3DD13003B	TO-92	Bulk	1000pcs/Bag
3DD13003B-TA	TO-92	Tape	2000pcs/Box

## Electrical Specification( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions			
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=1\text{mA}, I_E=0$	700		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	400		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\text{mA}, I_C=0$	9		V
Collector cut-off current	$I_{CBO}$	$V_{CB}=700\text{V}, I_E=0$		100	$\mu\text{A}$
Collector cut-off current	$I_{CEO}$	$V_{CE}=400\text{V}, I_B=0$		50	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=7\text{V}, I_C=0$		10	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE}=10\text{V}, I_C=0.4\text{A}$	20	40	
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=1.5\text{A}, I_B=0.5\text{A}$		3	V
	$V_{CE(sat)2}$	$I_C=0.5\text{A}, I_B=0.1\text{A}$		0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=0.5\text{A}, I_B=0.1\text{A}$		1	V
Transition Frequency	$f_T$	$V_{CE}=10\text{V}, I_C=100\text{mA}, f=1\text{MHz}$	4		MHz
Fall time	$t_f$	$I_C=1\text{A}$		0.7	$\mu\text{s}$
Storage time	$t_s$	$I_{B1}=-I_{B2}=0.2\text{A}$		4	$\mu\text{s}$

### CLASSIFICATION OF $h_{FE}$

Rank				
		1		
Range	20-25	25-30	30-35	35-40

KARKING: 13003B

# RATINGS AND CHARACTERISTIC CURVES

Static Characteristic

