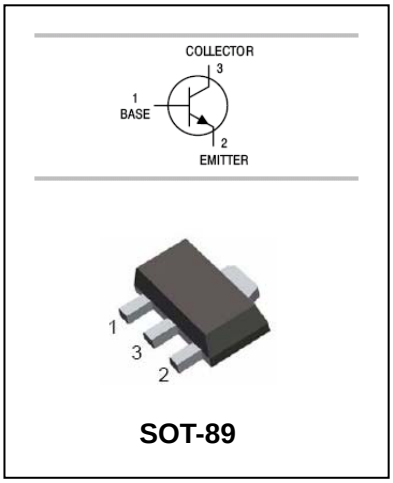
High Voltage Fast Switching NPN Power Transistor

3DD13003

FEATURES

- P_C=1.5W(Mounted on ceramic substrate)
- High speed switching.
- Small flat package.

Lead-free



SOT-89

APPLICATIONS

- High voltage switch mode application.

ORDERING INFORMATION

Type No.	Marking	Package Code
3DD13003	13003	SOT-89

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
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 Dissipation	1.5	W
T_j,T_{stg}	Junction and Storage Temperature	-55~150	℃

High Voltage Fast Switching NPN Power Transistor

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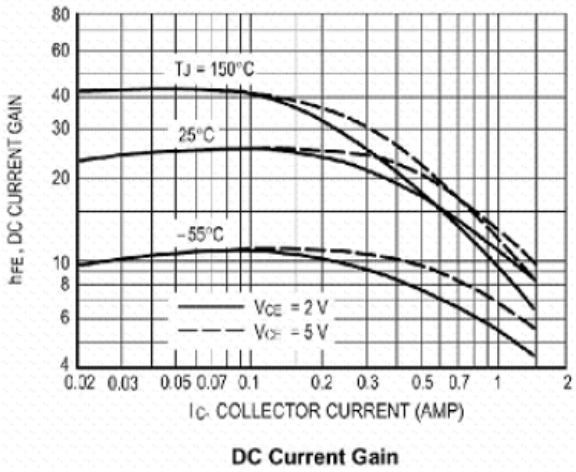
ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

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			1000	μA
Collector cut-off current	I_{CEO}	V_{CB}=400V,I_E=0			500	μA
Emitter cut-off current	I_{EBO}	V_{EB}=9V,I_C=0			1000	μA
DC current gain	h_{FE}	V_{CE}=5V,I_C=0.5A V_{CE}=5V,I_C=1.5A	8 5		40	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=1A, I_B= 250mA			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=1A, I_B= 250mA			1.2	V
Base-emitter voltage	V_{BE}	I_E=2000mA			3	V
Transition frequency	f_T	V_{CE}=10V, I_C=0.1A, f=1MHz	5			MHz
Fall time	t_f	I_C=1A,I_{B1}=I_{B2}=0.2A, V_{CC}=100V			0.5	μS
Storage time	t_s				2.5	μS

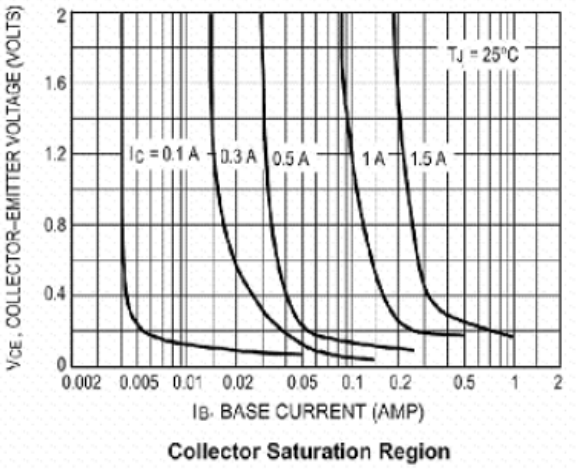
CLASSIFICATION OF $h_{FE(1)}$

Range	8-10	10-15	15-20	20-25	25-30	30-35	35-40

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



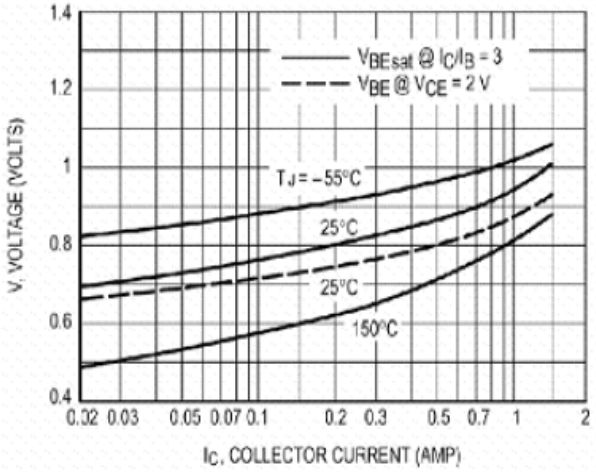
DC Current Gain



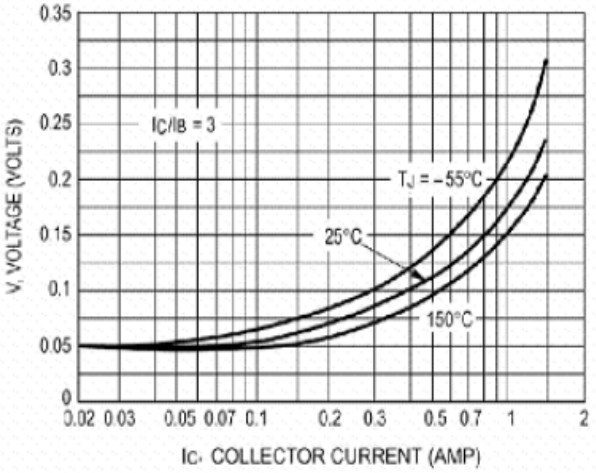
Collector Saturation Region

High Voltage Fast Switching NPN Power Transistor

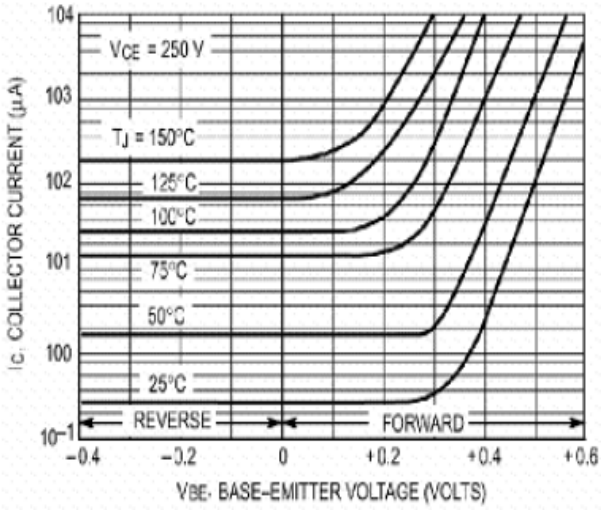
3DD13003



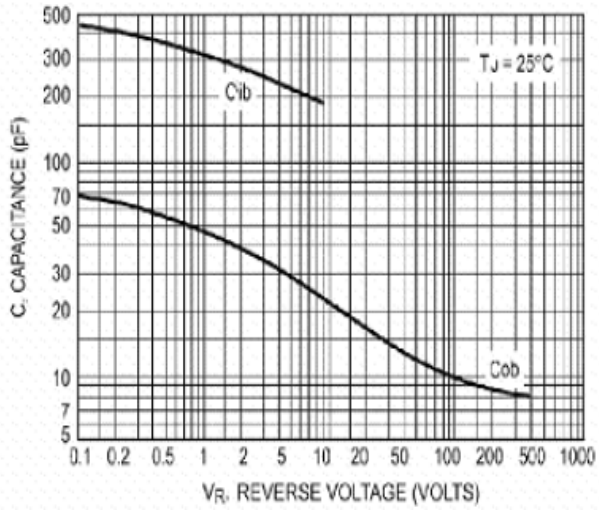
Base–Emitter Voltage



Collector–Emitter Saturation Region



Collector Cutoff Region



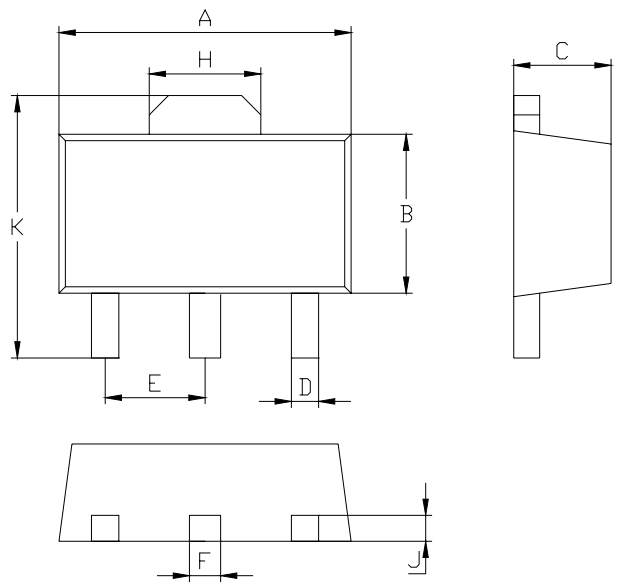
Capacitance

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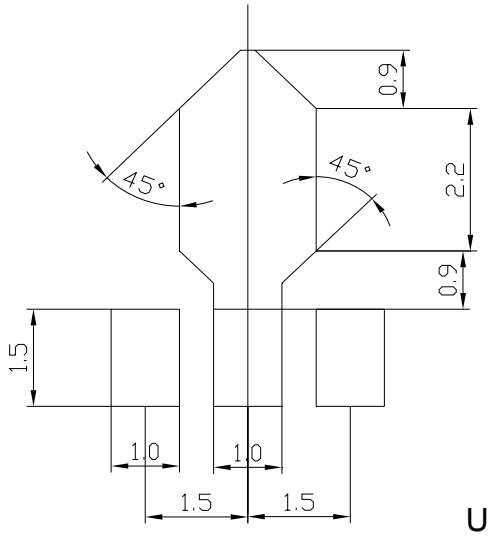
PACKAGE OUTLINE

Plastic surface mounted package SOT-89



SOT-89		
Dim	Min	Max
A	4.5	4.7
B	2.3	2.7
C	1.5Typical	
D	0.35	0.55
E	1.4	1.6
F	0.4	0.6
H	1.55	1.75
J	0.4Typical	
K	4.15	4.25
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit:mm

PACKAGE INFORMATION

Device	Package	Shipping
3DD13003	SOT-89	1000/Tape&Reel