



HIGH VOLTAGE FAST-SWITCHING NPN POWER TRANSISTER

D13001S

Characteristic/features

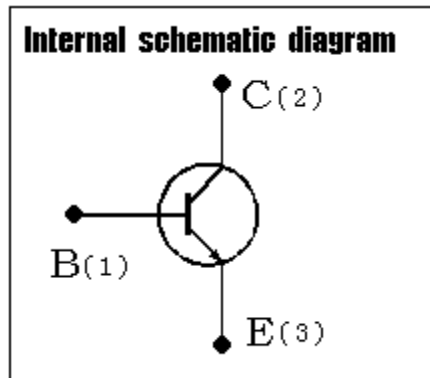
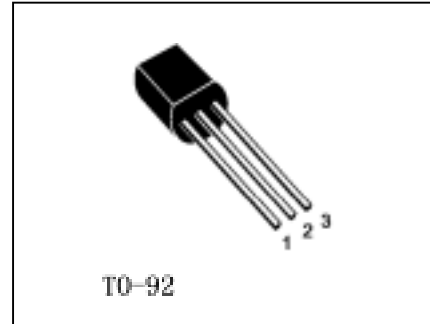
- High breakdown voltage
- High current capability
- High switching speed
- High reliability

Application

- Energy-saving light
- Electronic ballasts
- High frequency switching power supply
- High frequency power transform
- Commonly power amplifier circuit

Description

3DD13001S is a silicon npn power transistor. The main process include high voltage planer process, triple diffusion process and multi-surface passivation.



Absolute maximum ratings (Tc=25 °C)

ITEM	SYMBOL	RATING	UNITS
Collector-base voltage	VCBO	600	V
Collector-emitter voltage	VCEO	400	V
Emitter-base voltage	VEBO	9	V
Collector current	IC	0.5	A
Collector dissipation	PC	1	W
Junction temperature	Tj	150	
Junction temperature	Tstg	-55~+150	



Electrical characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Testing term	Min	Max	Units
Collector-emitter breakdown voltage	$V_{(BR)CE0}$	$I_C=10\text{mA}$, $I_B=0$	400		V
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C=1\text{mA}$, $I_B=0$	600		V
Emitter-base breakdown voltage	$V_{(BR)EB0}$	$I_E=1\text{mA}$, $I_C=0$	9		V
Collector-base Cutoff current	I_{CB0}	$V_{CB}=580\text{V}$, $I_E=0$		5	μA
Collector-emitter Cutoff current	I_{CE0}	$V_{CE}=390\text{V}$, $I_B=0$		10	μA
Emitter-base Cutoff current	I_{EB0}	$V_{EB}=7\text{V}$, $I_C=0$		5	μA
DC current gain	h_{FE}	$V_{CE}=20\text{V}$, $I_C=20\text{mA}$	8	40	
Collector-emitter Saturation voltage	$V_{CE(sat)}(1)$	$I_C=50\text{mA}$, $I_B=5\text{mA}$		0.5	V
	$V_{CE(sat)}(2)$	$I_C=100\text{mA}$, $I_B=10\text{mA}$		1	V
Base-emitter Saturation voltage	$V_{BE(sat)}$	$I_C=50\text{mA}$, $I_B=5\text{mA}$		1.2	V
Fall time	t_f	$V_{CC}=24\text{V}$ $I_C=0.1\text{A}$, $I_{B1}=-I_{B2}=0.02\text{A}$		0.7	μS
Storage time	t_s	$V_{CC}=24\text{V}$ $I_C=0.1\text{A}$, $I_{B1}=-I_{B2}=0.02\text{A}$		4	μS
Transition frequency	f_T	$V_{CE}=10\text{V}$, $I_C=20\text{mA}$	4	-	MHz

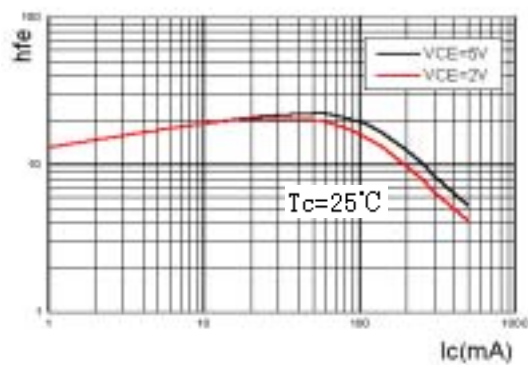
Thermal characteristics

Item	Symbol	Min	Max	Units
Thermal resistance Junction to atmosphere	$R_{th(j-a)}$		125	/W

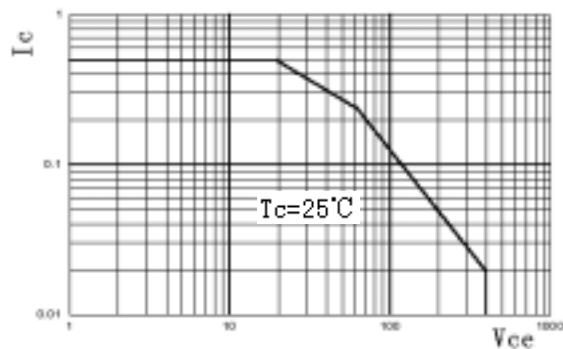


Typical characteristics:

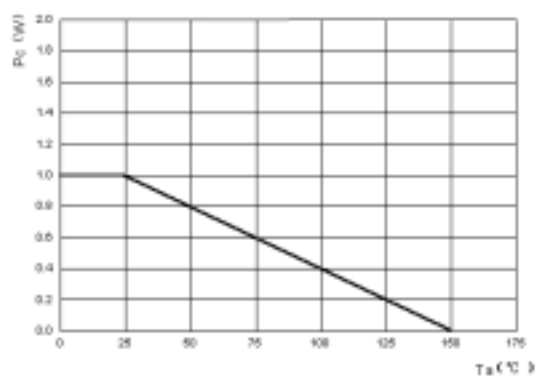
DC current gain



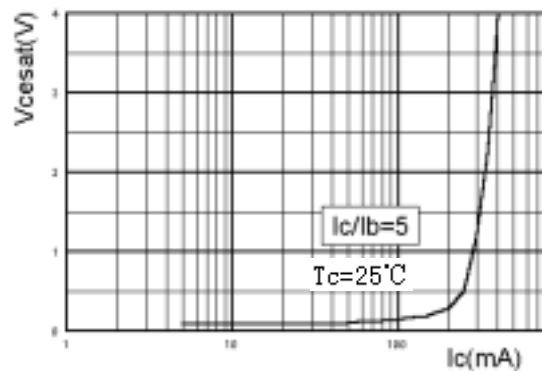
SOA(DC)



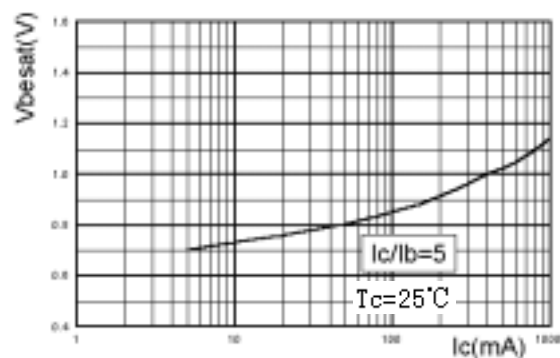
Power dissipation



Collector-emitter saturation voltage

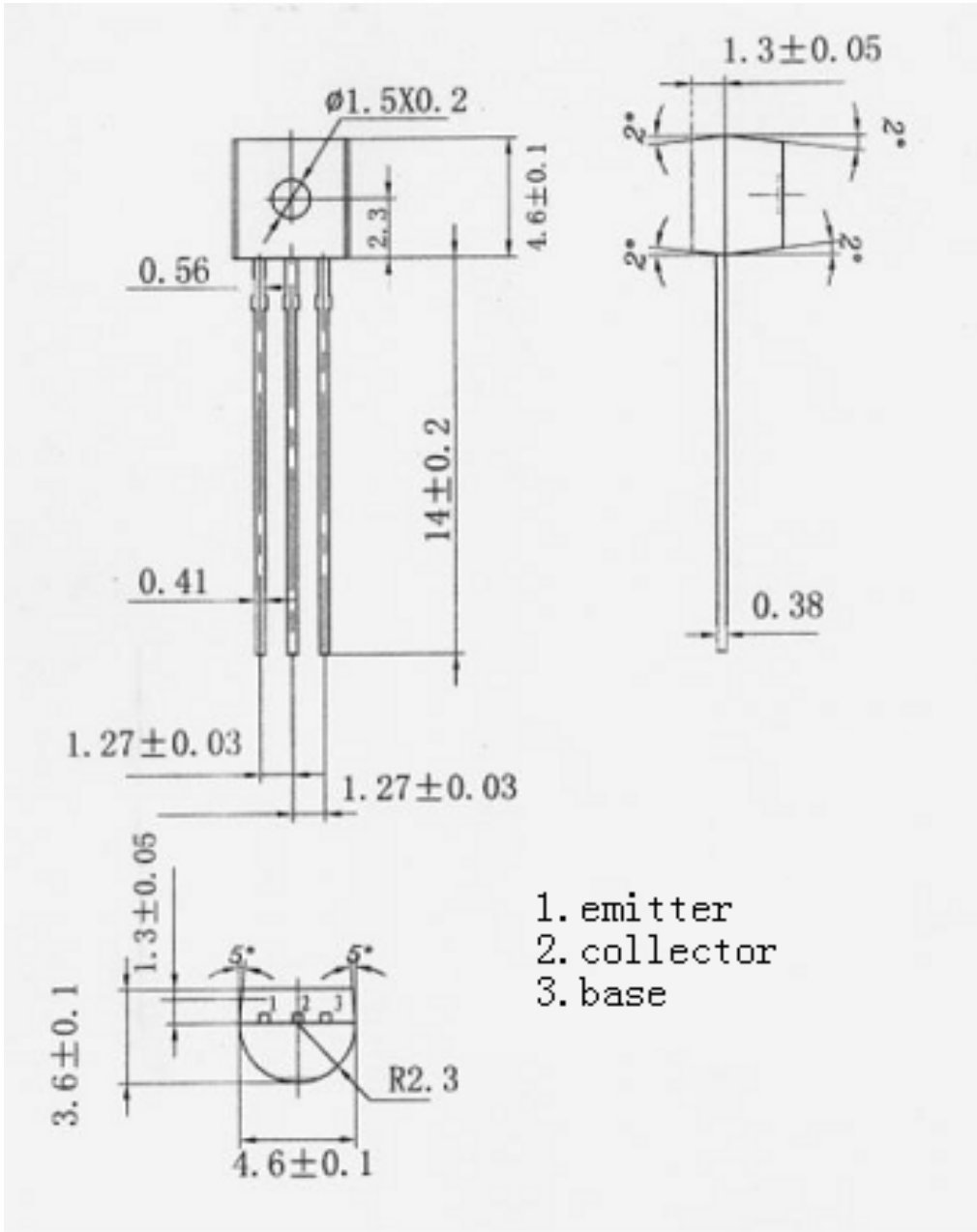


Base-emitter saturation voltage



Package dimensions

T0 - 92



Units : mm



● **NOTES**

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3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
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