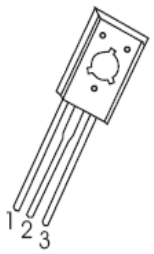
DONGGUAN NANJING ELECTRONICS LTD.,

TO-126 Plastic-Encapsulate Transistors

3DD13005HD56 TRANSISTOR (NPN)

TO – 126

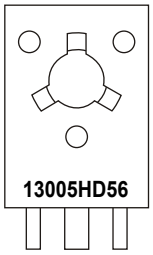


1. BASE
2. COLLECTOR
3. EMITTER

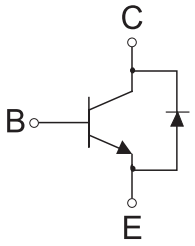
FEATURES

- Power Switching Applications
- Good high temperature
- Low saturation voltage
- High speed switching

MARKING



Equivalent Circuit



ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
3DD13005HD56	TO-126	Bulk	200pcs/Bag
3DD13005HD56-TU	TO-126	Tube	60pcs/Tube

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	450	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current	3.5	A
P_C	Collector Power Dissipation	1.5	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	83.3	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55~+150	℃

ELECTRICAL CHARACTERISTICS

T_a=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	450			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			100	μA
Collector cut-off current	I_{CEO}	V_{CE}=450V,I_B=0			100	μA
Emitter cut-off current	I_{EBO}	V_{EB}=9V,I_C=0			100	μA
DC current gain	$h_{FE(1)}$*	V_{CE}=5V, I_C=1A	10		40	
	$h_{FE(2)}$*	V_{CE}=5V, I_C=5mA	10			
	$h_{FE(3)}$*	V_{CE}=5V, I_C=2A	5			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	I_C=1A,I_B=200mA			0.3	V
	$V_{CE(sat)2}$	I_C=2A,I_B=500mA			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	I_C=2A,I_B=500mA			1.2	V
	$V_{BE(sat)2}$	I_C=500mA,I_B=100mA			1	V
Emitter-collector forward voltage	VF_{EC}	I_C=2A			2	V
Transition frequency	f_T	V_{CE}=10V,I_C=500mA	5			MHZ
Storage time	ts	I_C=250mA (UI9600)			5	μs

*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

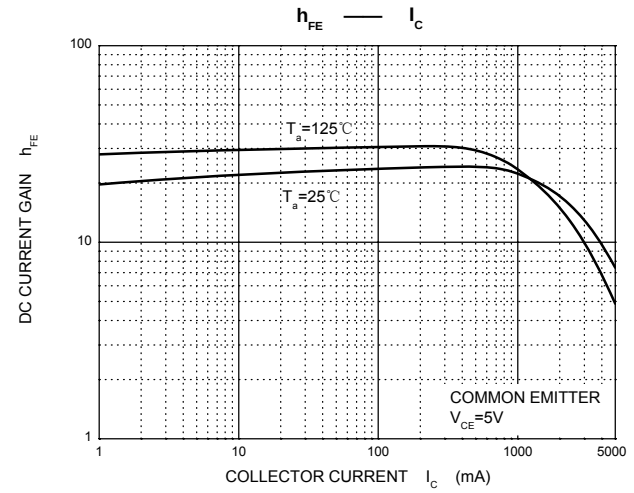
CLASSIFICATION of $h_{FE(1)}$

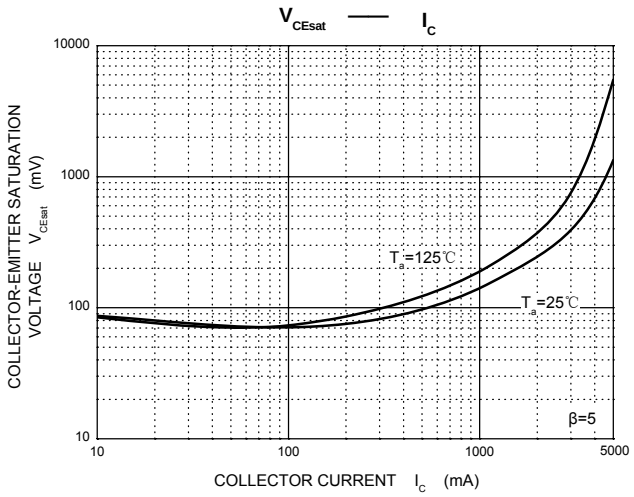
RANGE	10-15	15-20	20-25	25-30	30-35	35-40

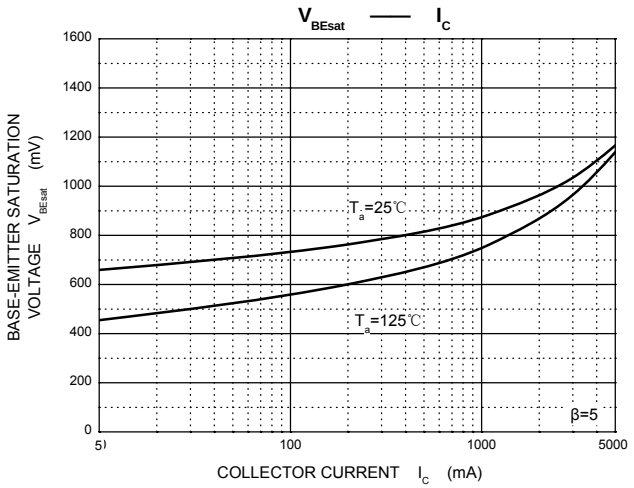
CLASSIFICATION of ts

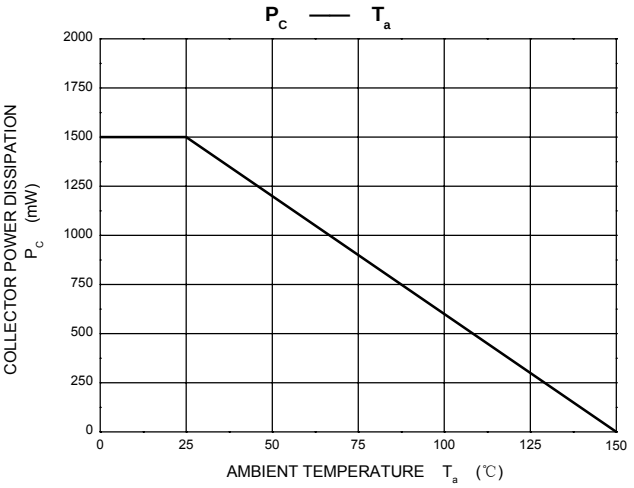
RANK	A1	A2	B1	B2	C1	C2
RANGE	2.0-2.5 (μs)	2.5-3.0(μs)	3.0-3.5(μs)	3.5-4.0(μs)	3.5-4.0(μs)	4.5-5.0(μs)

Typical Characteristics

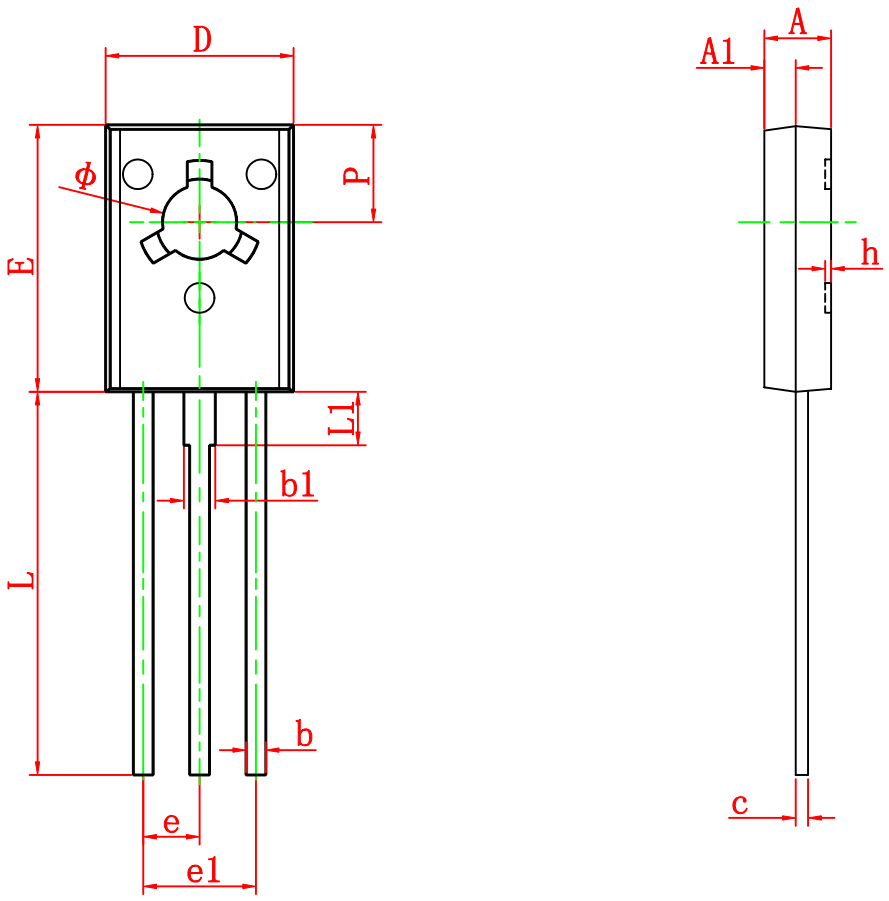








TO-126 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.500	2.900	0.098	0.114
A1	1.100	1.500	0.043	0.059
b	0.660	0.860	0.026	0.034
b1	1.170	1.370	0.046	0.054
c	0.450	0.600	0.018	0.024
D	7.400	7.800	0.291	0.307
E	10.600	11.000	0.417	0.433
e	2.290 TYP		0.090 TYP	
e1	4.480	4.680	0.176	0.184
h	0.000	0.300	0.000	0.012
L	15.300	15.700	0.602	0.618
L1	2.100	2.300	0.083	0.091
P	3.900	4.100	0.154	0.161
Φ	3.000	3.200	0.118	0.126