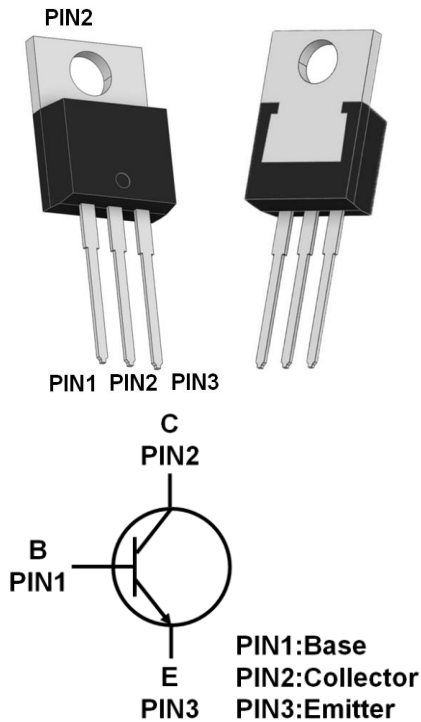


NPN High Power Transistors



Features

- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- High DC Current Gain
- Low Saturation Voltage
- High Power Dissipation

Mechanical Data

- Package: TO-220AB
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- Unit Weight: 1.9g

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Device marking code			D2012
Collector-base voltage	V_{CBO}	V	60
Collector-emitter voltage	V_{CEO}	V	60
Emitter-base voltage	V_{EBO}	V	7
Collector current	I_C	A	3
Peak Collector current (single pulse, $t_p \leq 1ms$)	I_{CM}	A	5
Power dissipation	P_D	W	2
Thermal resistance, junction-to-ambient (Note1)	R_{thJA}	°C/W	62.5
Thermal resistance, junction-to-case(Note1)	R_{thJC}	°C/W	50
Junction temperature	T_j	°C	-55 to +150
Storage temperature	T_{STG}	°C	-55 to +150

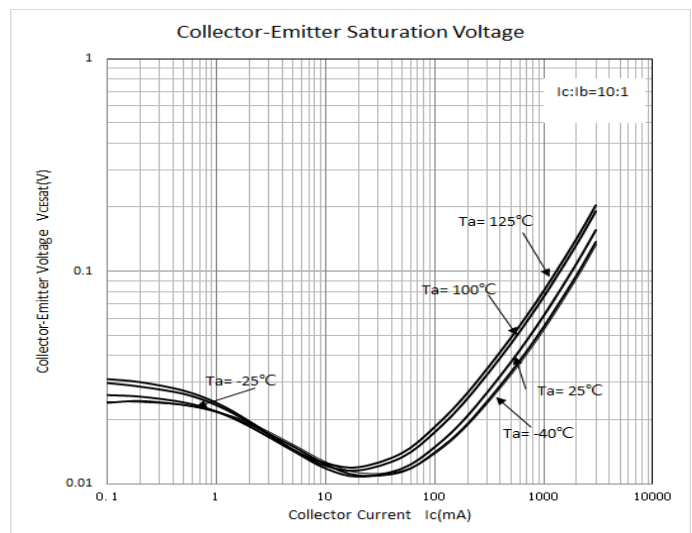
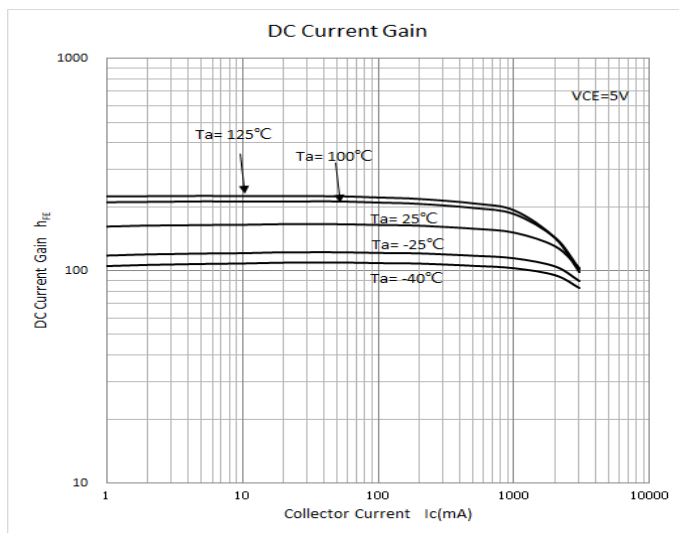
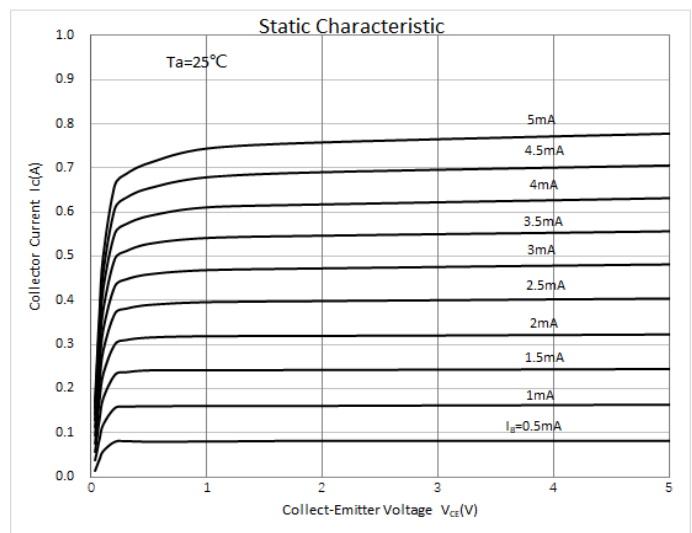
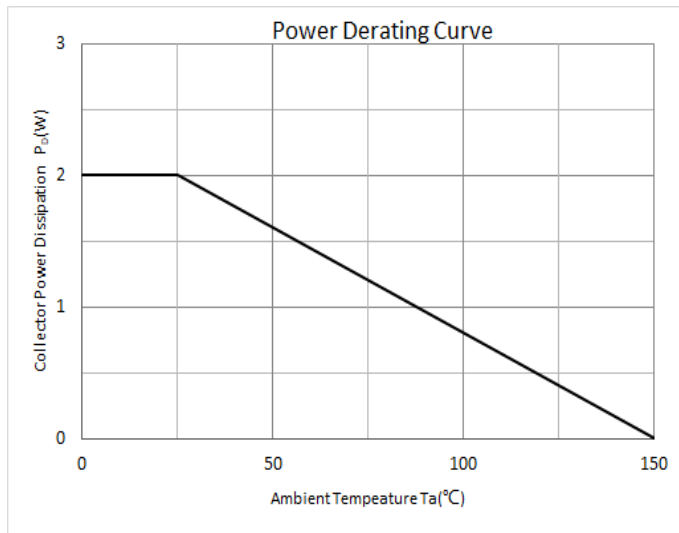
Note1: Device mounted on PCB with minimum recommended pad layout and additional heat sink (25mm x 23mm x 15mm) attached.

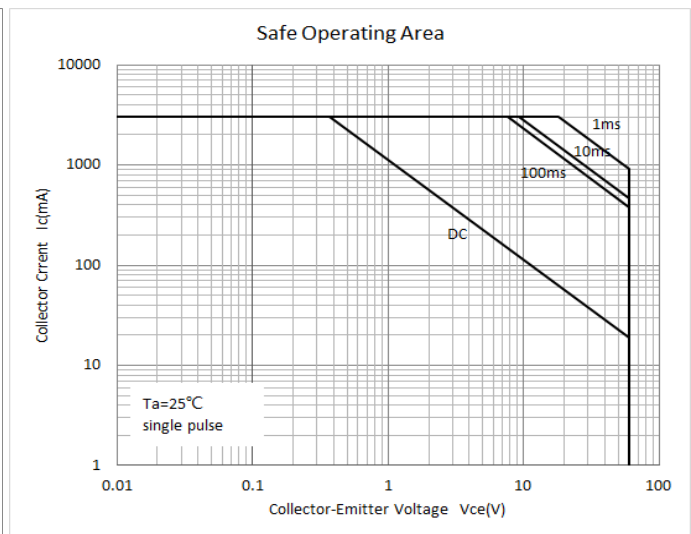
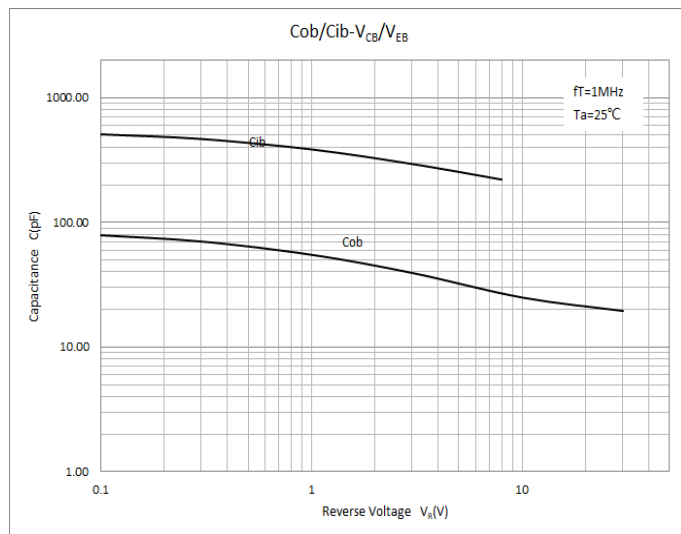
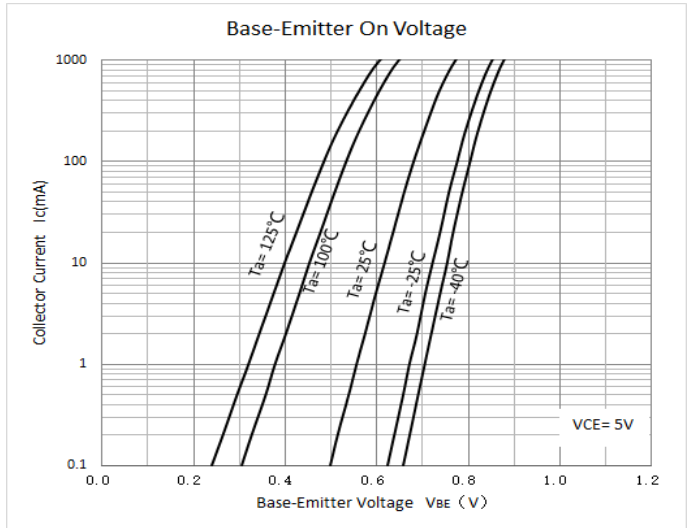
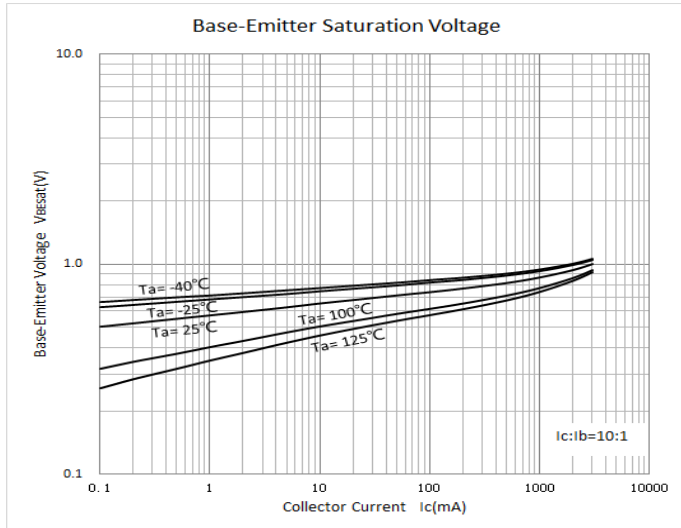


■ Electrical Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C = 100\mu A, I_E = 0$	60		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C = 50mA, I_B = 0$	60		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E = 100\mu A, I_C = 0$	7		
Collector-base cut-off current	I_{CBO}	μA	$V_{CB} = 60V$			100
Emitter-base cut-off current	I_{EBO}	mA	$V_{EB} = 7V$			100
DC current gain	h_{FE}		$V_{CE} = 5V, I_C = 0.5A$	100		320
			$V_{CE} = 5V, I_C = 2A$	20		
			$V_{CE} = 5V, I_C = 3A$	60		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = 2A, I_B = 0.2A$			1
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = 2A, I_B = 0.2A$			1.5
Base-Emitter Voltage	$V_{BE(on)}$	V	$V_{CE} = 5V, I_C = 0.5A$			1
Collector-base output capacitance	Cob	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$		30	

■ Characteristics(Typical)

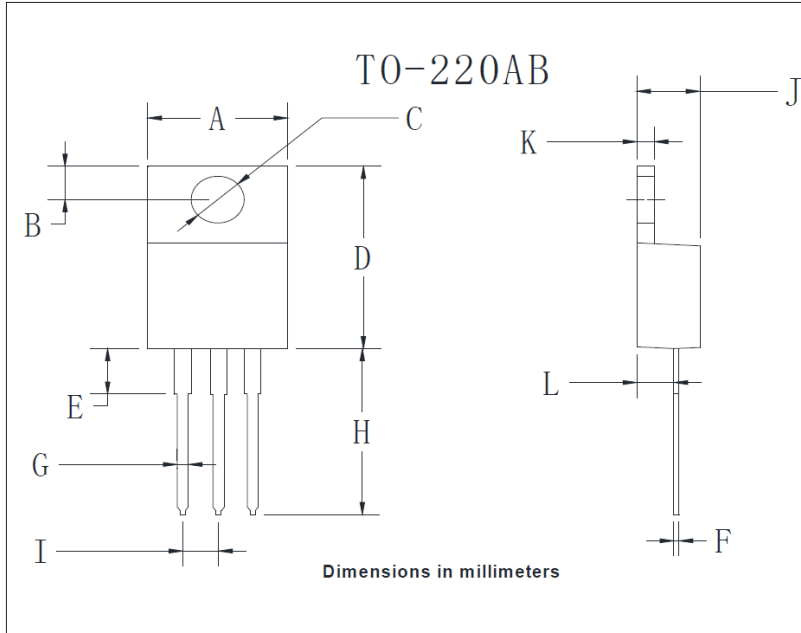




■ Ordering Information (Example)

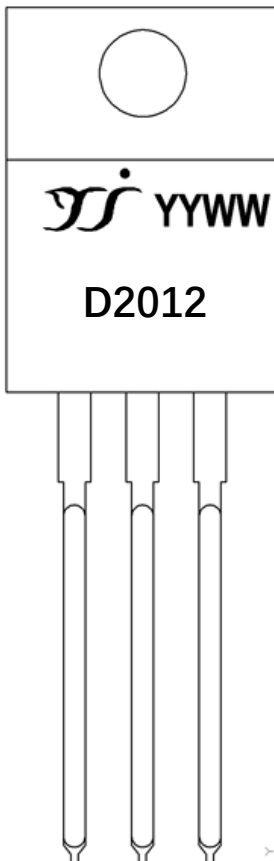
PREFERED P/N	PACKING CODE	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2SD2012	B1	50/Tube	1000	2000	Tube

■ TO-220AB Package information



TO-220AB		
Dim	Min	Max
A	9.95	10.35
B	2.55	2.95
C	3.8	4.0
D	14.95	15.25
E	3.75	4.25
F	0.26	0.5
G	0.68	0.94
H	13.4	13.9
I	2.35	2.65
J	4.38	4.78
K	1.14	1.4
L	2.37	2.79

■ Marking code



Yangjie LOGO
YYWW: YY, years; WW, week.
For example, 24 represents 2024; 01 represents the first week of this year.
D2012: Product model.



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