

3DD4520 A6



NPN UNIVERSAL POWER TRANSISTOR

VOLTAGE: 800 Volts

CURRENT: 2 Amperes

Package: TO-126

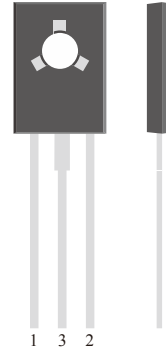
FEATURES

- NPN General-Purpose Power Transistor.
- Small Temperature Drift And Low Cost.
- Output High Current And High Power.
- Large Safe Operation Area(SOA) And Low Thermal Resistance.

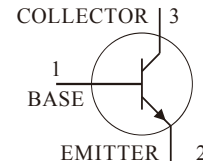
MECHANICAL DATA

- **Package:** Molding Compound Meets UL 94V-0 Flammability Rating.
The Material Of Product Compliance With RoHS Requirements.
- **Mounting Position:** Any.
- **Pin and polarity:**As Shown In The Figure On The Right.

Diagram:



Polarity:



Maximum Ratings (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Collector-Base Voltage		V_{CBO}	800	V
Collector-Emitter Voltage		V_{CEO}	450	V
Emitter-Base Voltage		V_{EBO}	9	V
Collector Current		I_C	2	A
Collector Pulse Current (tp<5ms)		I_{CM}	4	A
Base Current		I_B	1	A
Base Pulse Current(tp<5ms)		I_{BM}	2	A

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Total Device Power Dissipation		P_D	1250	mW
Derating Factor	above 25°C	D_F	10.0	mW/°C
Operating Junction Temperature Range		T_J	-55 to 150	°C
Storage Temperature Range		T_{STD}	-55 to 150	
Thermal Resistance From Junction To Ambient With Steady-State	At 0.375"(9.5mm) lead length Mounted On vertical P.C. Board	$R_{\theta JA}$	100.0	°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 75mm x 45mm x 2.5mm Alu. Heat.	$R_{\theta JC}$	2.5	

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ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	IC= 1 mAdc, IE= 0	V _{(BR)CBO}	800	-	-	V
Collector-Emitter Breakdown Voltage	IC= 1 mAdc, IB= 0	V _{(BR)CEO}	450	-	-	V
Emitter-Base Breakdown Voltage	IE= 1 mAdc, IC= 0	V _{(BR)EBO}	9	-	-	V
Collector Cut-off Current	VCB= 800 Vdc, IE= 0	I _{CBO}	-	-	100	uA
Collector Cut-off Current	VCB= 450 Vdc, IE= 0	I _{CEO}	-	-	100	uA
Emitter Cut-off Current	VCB= 9 Vdc, IE= 0	I _{EBO}	-	-	100	uA
ON CHARACTERISTICS						
DC Current Gain	VCE= 5 V, IC= 200 mA	H _{FE}	20	-	35	-
Collector-Emitter Saturation Voltage	IC= 500 mA, IB= 100 mA	V _{CE(Sat)}	-	-	0.8	V
Base-Emitter Saturation Voltage	IC= 500 mA, IB= 100 mA	V _{BE(Sat)}	-	-	1.5	V
storage time	UI9600, IC=0.25A	T _S	2		5	us
rise time		T _R			2	us
fall time		T _F			2	us
Transition Frequency, f= 1MHz	VCE= 10 V, IC= 100 mA	f _T	5	-	-	MHZ

Notes: 1.Pulse test, pulse width tp ≤ 300 μs, duty cycle δ ≤ 2%

Notes: 2.HFE grading,20~25~30~35

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Typical Characteristics Curves

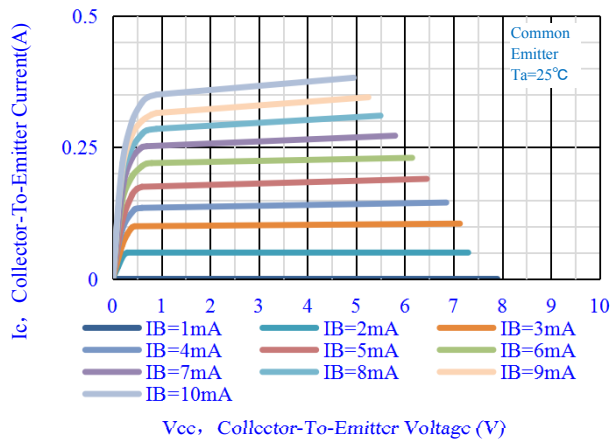


Fig.1-Static Characteristics

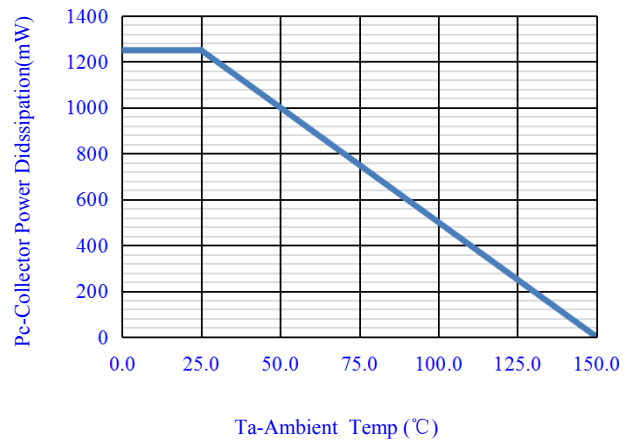


Fig.2-Collector Power Dissipation Vs. Ta

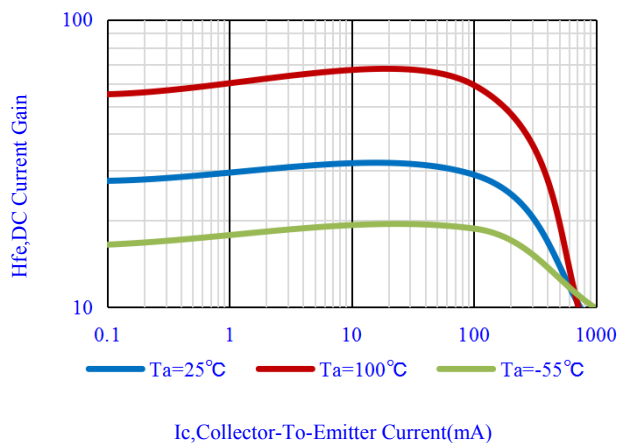


Fig.3-Dc Current Gain Vs. Collector Current

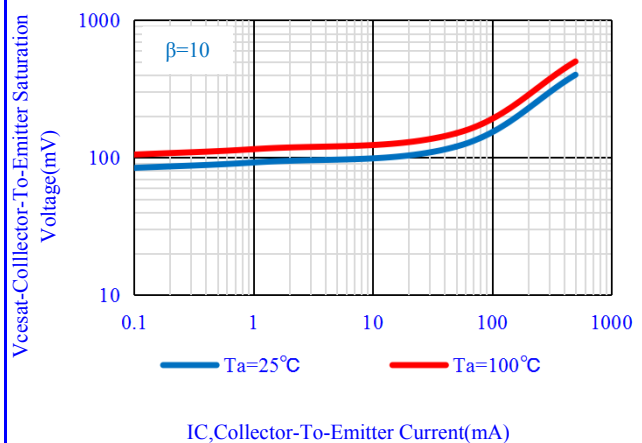


Fig.4-Base-To-Emitter Saturation Voltage Vs. Collector Current

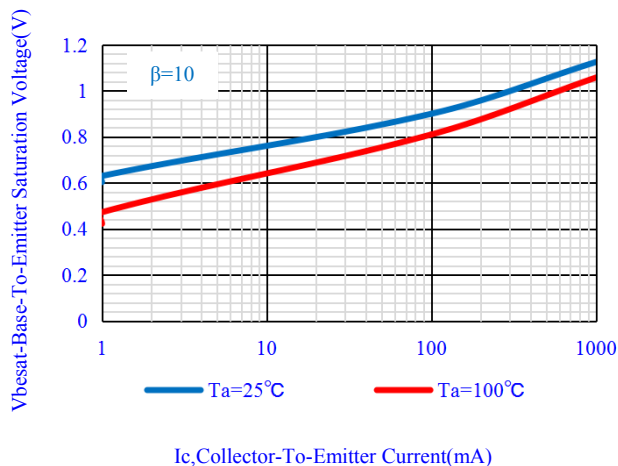


Fig.5-Base-To-Emitter Saturation Voltage Vs. Collector Current

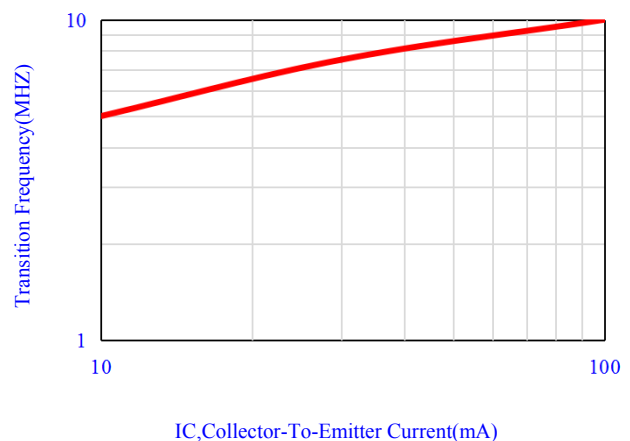


Fig.6-Collector Current Vs. Transition Frequency

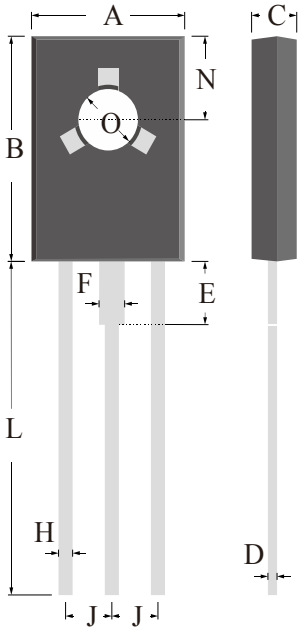
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OUTLINE DRAWINGS

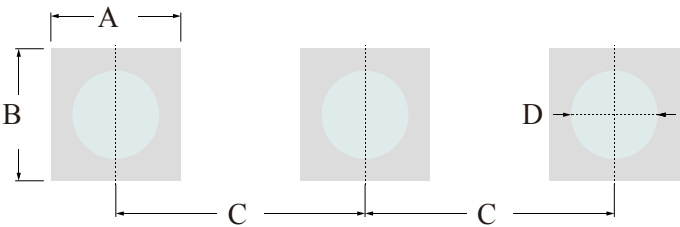
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OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	7.30	-	7.90	0.2874	-	0.3110
B	10.40	-	11.20	0.4094	-	0.4409
C	2.50	-	2.90	0.0984	-	0.1142
D	0.30	-	0.60	0.0118	-	0.0236
E	2.00	-	2.40	0.0787	-	0.0945
F	1.17	-	1.37	0.0461	-	0.0539
H	0.60	-	0.80	0.0236	-	0.0315
J	2.09	-	2.49	0.0823	-	0.0980
L	15.00	-	17.00	0.5906	-	0.6693
N	3.80	-	4.20	0.1496	-	0.1654
O	2.75	-	3.15	0.1083	-	0.1240

RECOMMEDND LAYOUT DRAWINGS

TO-126



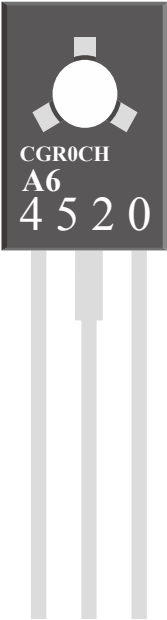
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	1.20	-	-	0.0472	-
B	-	1.20	-	-	0.0472	-
C	-	2.30	-	-	0.0906	-
D	-	0.80	-	-	0.0315	-

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MARKING INFORMATION



MARKING INSTRUCTIONS

4520 A6=Make
CGR0CH=Inernal Code,According To Actual Changes

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
TO-126	P1	0.628	Tube	400	4000	20000

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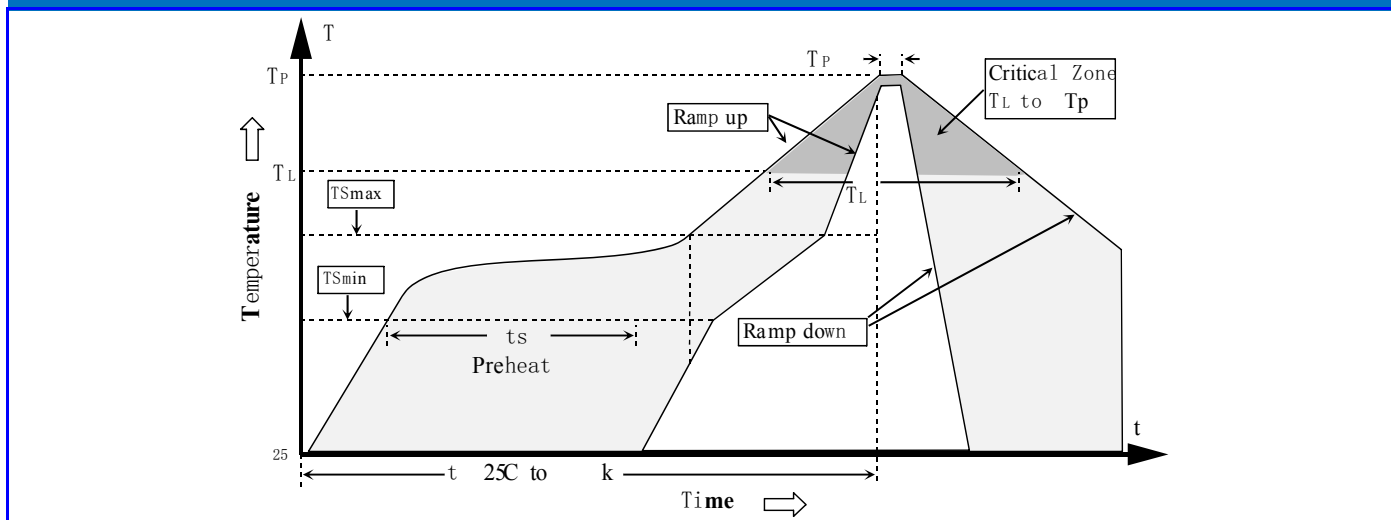
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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