

PNP Epitaxial Silicon Transistor

1 Description

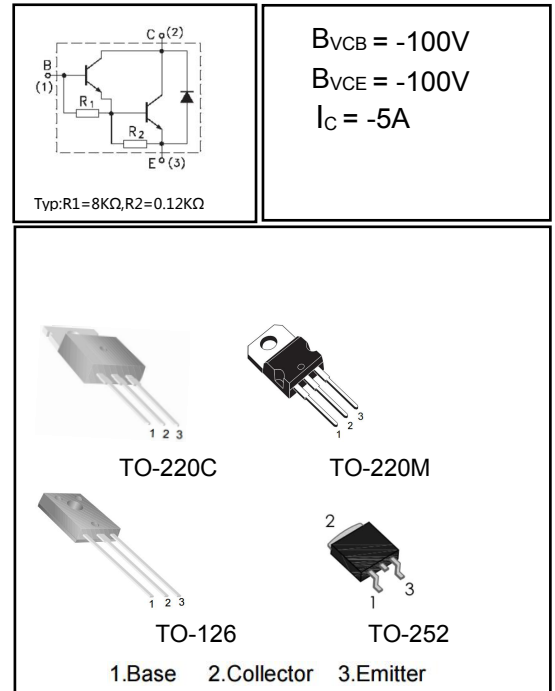
MJD127/TIP127 is a medium power low voltage transistor

2 Features

- High current output up to 5A
- Low saturation voltage
- Complement to TIP122

3 Applications

- voltage regulator
- medium power linear
- switching



4 Electrical Characteristics

4.1 Absolute Maximum Ratings (T_c=25°C, unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-100	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-5	A
*Collector Current (Pulse)	I_{CP}	-8	A
Base Current (DC)	I_B	-0.1	A
Collector Dissipation (T _c =25°C)	P_C	65	W
Collector Dissipation (T _a =25°C)		2	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	- 55 ~ 150	°C

* PW≤10ms, Duty Cycle≤50%

4.2 Thermal Characteristics

PARAMETER	SYMBOL	VALUE			UNIT
		TO-220	TO-126	TO-252	
Thermal Resistance, Junction to Case-sink	R_{thJC}	3.0	6.5	3.3	°C/W

4.3 Electrical Characteristics (Tc=25°C, unless otherwise noted)

SYMBOL	PARAMETER	Test Conditions	Min	Typ	Max	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = -100V$	-	-	-100	μA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = -100V$	-	-	-100	μA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = -5V$	-	-	-10	mA
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ($I_B = 0$)	$I_C = 10mA$	-100	-	-	V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_E = 0$)	$I_C = 100\mu A$	-100	-	-	V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ($I_C = 0$)	$I_E = 30mA$	-5	-	-	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -1A, I_B = -10mA$	-	-	-1.2	V
		$I_C = -3A, I_B = -12mA$	-	-	-2	
		$I_C = -5A, I_B = -20mA$	-	-	-4	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -3A, I_B = -12mA$	-	-	-1.5	
h_{FE}	DC Current Gain	$I_C = 10mA, V_{CE} = 4V$	1K	-	9K	
		$I_C = 0.5A, V_{CE} = 4V^*$	1K	-	9K	
		$I_C = 3A, V_{CE} = 4V$	1K	-	9K	

 h_{FE}^* Classification

Classification	1	2	3	4	5	6
h_{FE}^*	1K-3K	3K-4K	4K-5K	5K-6K	6K-7K	7K-9K

5 Typical characteristics diagrams

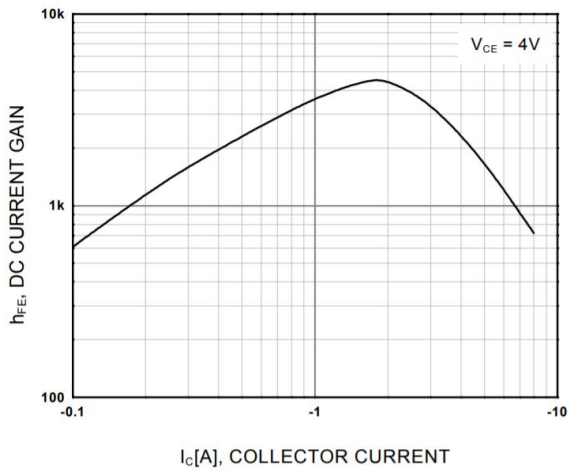
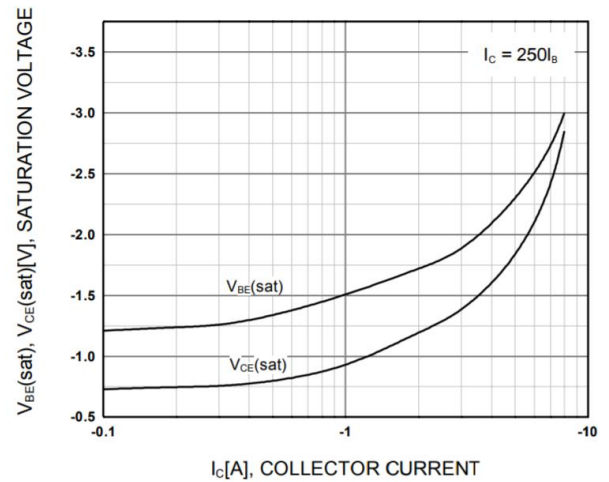
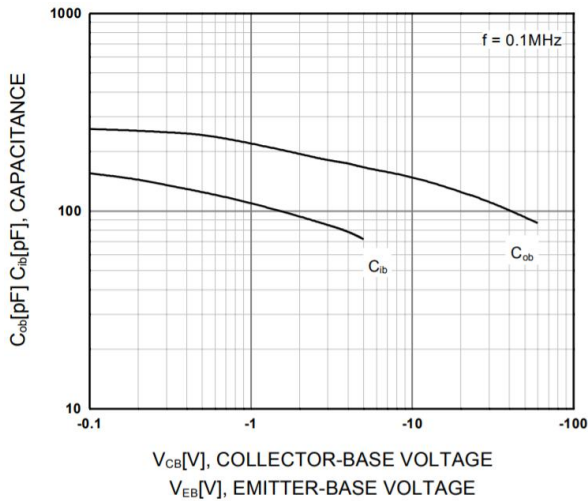


Figure 1. DC current Gain



**Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage**



**Figure 3. Output and Input Capacitance
vs. Reverse Voltage**

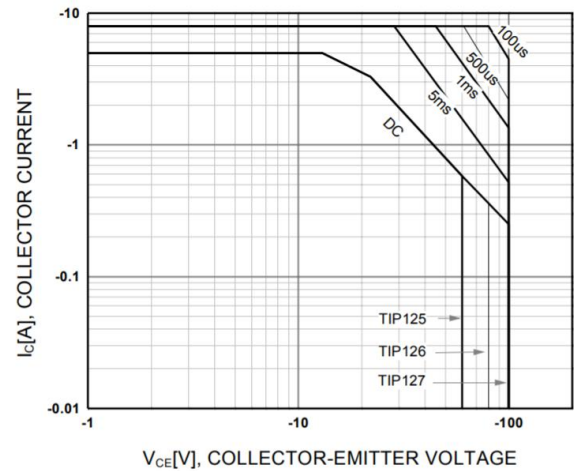


Figure 4. Safe Operating Area

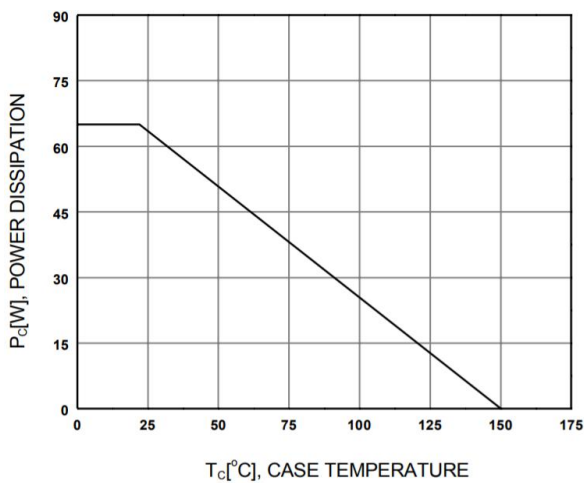


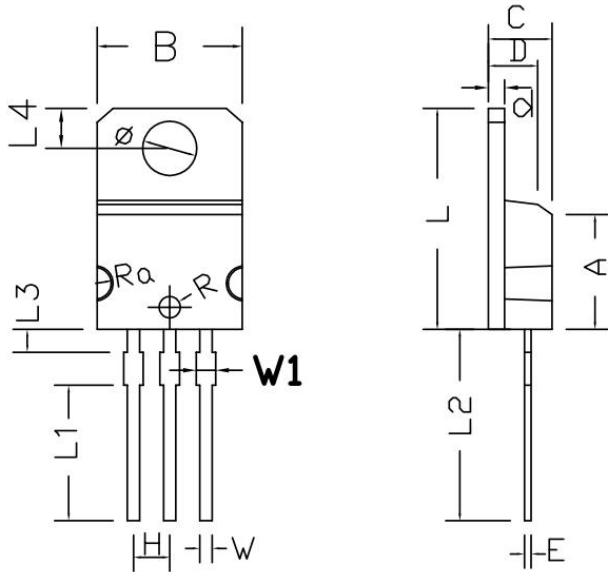
Figure 5. Power Derating

6 Product Specifications and Packaging Models

Product Model	Package Type	Mark Name	RoHS	Package	Quantity
TIP127	TO-220	TIP127	Pb-free	Tube	1000//box
TIP127	TO-252	MJD127	Pb-free	Braid	3000/disc

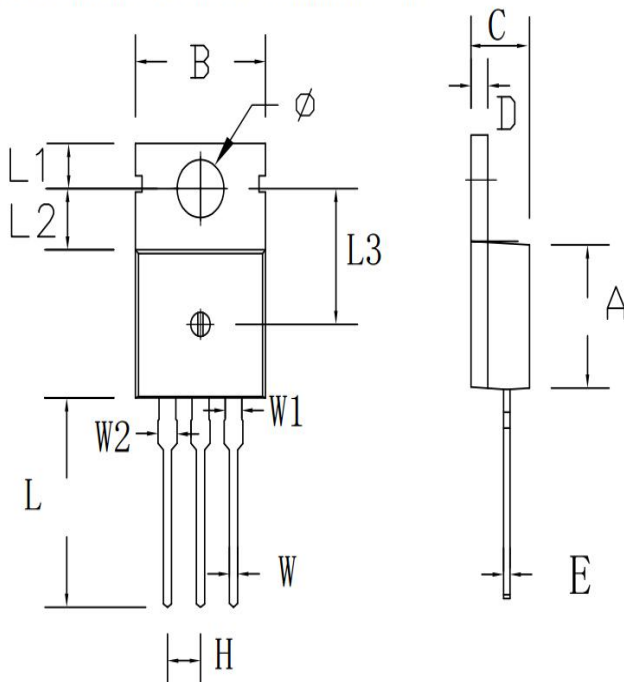
7 Dimensions

TO-220M PACKAGE OUTLINE DIMENSIONS



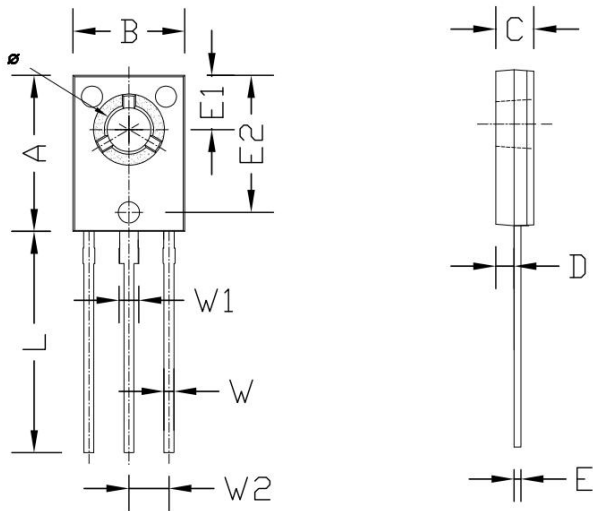
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
	MIN	MAX	MIN	MAX
A	8.03	8.05	0.316	0.317
B	10.13	10.23	0.399	0.403
C	4.42	4.52	0.174	0.178
D	3.42	3.52	0.135	0.139
E	0.44	0.46	0.017	0.018
L	15.25	15.45	0.601	0.609
H	2.52	2.56	0.099	0.101
W	0.85	0.87	0.033	0.034
Φ	3.60	3.90		
R	0.74	0.76	0.029	0.030
Ra	9.44	9.48	0.372	0.374
d	1.28	1.32	0.050	0.052
L1	9.4	9.6	0.370	0.378
L2	13.22	13.62	0.521	0.537
L3	1.52	1.72	0.060	0.068
L4	2.7	2.9	0.106	0.114
W1	1.32	1.42	0.052	0.056

TO-220C PACKAGE OUTLINE DIMENSIONS



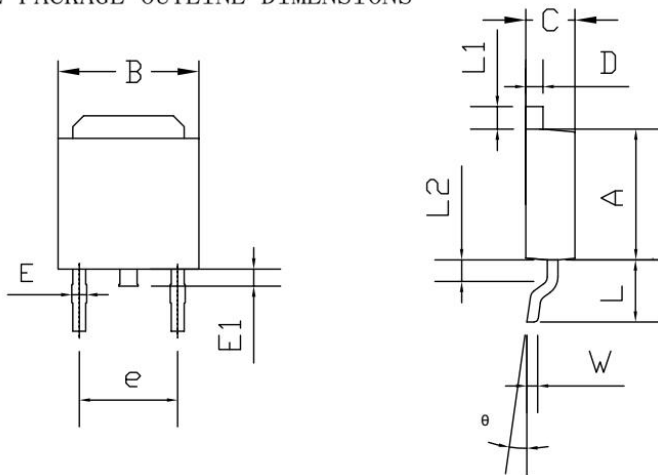
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
A	8.80	9.30	0.346	0.366
B	9.70	10.30	0.382	0.406
C	4.25	4.75	0.167	0.187
D	1.20	1.45	0.047	0.057
E	0.40	0.60	0.016	0.024
H	2.54 TYP		0.100 TYP	
W	0.60	0.95	0.024	0.037
W1	1.05	1.45	0.041	0.057
W2	1.20	1.60	0.047	0.063
L	12.60	13.40	0.496	0.528
L1	2.45	2.95	0.096	0.116
L2	3.45	3.95	0.136	0.156
L3	8.15	8.65	0.321	0.341
Φ	3.50	3.90	0.138	0.154

TO-126 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
A	10.50	11.10	0.413	0.437
B	7.65	7.95	0.301	0.313
C	2.50	2.80	0.098	0.110
D	1.45	1.75	0.057	0.069
E	0.40	0.60	0.016	0.024
E1	3.65	3.85	0.144	0.152
E2	9.40	9.60	0.370	0.378
L	15.4	15.9	0.606	0.626
W	0.60	0.80	0.024	0.031
W1	1.20	1.30	0.047	0.051
W2	2.32 TYP		0.091 TYP	
Φ	3.05	3.35	0.120	0.132

TO-252 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
A	5.70	6.30	0.224	0.248
B	6.30	6.90	0.248	0.272
C	2.05	2.55	0.081	0.100
D	0.70	0.90	0.028	0.035
E	0.40	0.60	0.016	0.024
E1	0.60	1.00	0.024	0.039
e	4.50	4.65	0.177	0.183
L	2.75	3.05	0.108	0.120
L1	0.75	1.15	0.030	0.045
L2	0.75	1.25	0.030	0.049
W	0.40	0.60	0.016	0.024
θ	0	8	0	8

8 Attentions

- Jiangsu Donghai Semiconductor Technology Co., Ltd. reserves the right to change the specification without prior notice! The customer should obtain the latest version of the information before making the order and verify that the information is complete and up to date.
- It is the responsibility of the purchaser for any failure or failure of any semiconductor product under certain conditions. It is the responsibility of the purchaser to comply with safety standards and to take safety measures in the system design and machine manufacturing of WXDH products in order to avoid potential risk of failure. Injury or property damage.
- Product promotion is endless, our company will be dedicated to provide customers with better products.

9 Appendix

Revision history:

Date	REV.	Description	Page
2017.08.11	1.0	Original	