2SD882-P

NPN UNIVERSAL POWER TRANSISTOR

Pb-Free RoHS COMPLIANT

VOLTAGE:	40 Volts	CURRENT:	3 Ampers	Package:	SOT-89

FEATURES

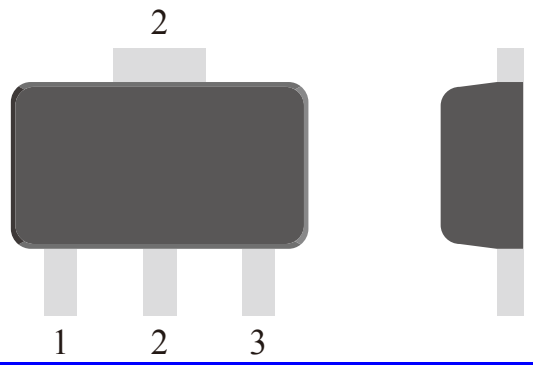
- NPN General-Purpose Power Transistor.
- Small Temperature Drift And Low Cost.
- Output High Current And High Power.
- Large Safe Operation Area(SOA) And Low Thermal Resistance.

MECHANICAL DATA

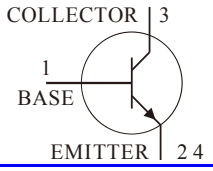
- **Package:** Molding Compound Meets UL 94V-0 Flammability Rating.

  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℃ Unless otherwise specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Collector-Base Voltage		V_{CBO}	40	V
Collector-Emitter Voltage		V_{CEO}	30	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	Continuous	I_C	3	A

Thermal Characteristcs (Ta=25℃ 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/℃
Operating Junction Temperature Range		T_J	-55 to 150	℃
Storage Temperature Range		T_{STD}	-55 to 150	
Thermal Resistance From Junction To Ambient With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz.Copper	$R_{\theta JA}$	100.0	℃/W

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ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	IC= 100 uAdc,IE= 0	$V_{(BR)CBO}$	40	-	-	V
Collector-Emitter Breakdown Voltage	IC= 10 mAdc,IB= 0	$V_{(BR)CEO}$	30	-	-	V
Emitter-Base Breakdown Voltage	IE= 10 uAdc,IC= 0	$V_{(BR)EBO}$	6	-	-	V
Collector Cut-off Current	VCB= 40 Vdc,IE= 0	I_{CBO}	-	-	1	uA
Collector Cut-off Current	VCB= 30 Vdc,IE= 0	I_{CEO}	-	-	10	uA
Emitter Cut-off Current	VCB= 5 Vdc,IE= 0	I_{EBO}	-	-	1	uA
ON CHARACTERISTICS						
DC Current Gain	VCE= 2 V,IC= 20 mA VCE= 2 V,IC= 1000 mA	H_{FE}	30 60	- -	- 400	-
Collector-Emitter Saturation Voltage	IC= 1500 mA,IB= 200 mA	$V_{CE(Sat)}$	-	-	0.5	V
Base-Emitter Saturation Voltage	IC= 1500 mA,VCE= 2 V	$V_{BE(Sat)}$	-	-	1.5	V
Transition Frequency, f= 10MHz	VCE= 5 V,IC= 100 mA	fT	50	-	-	MHZ

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Typical Characteristics Curves

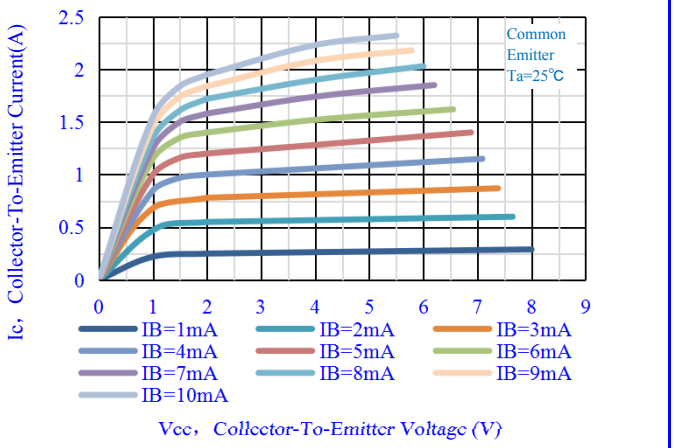

Fig.1-Static Characteritsics

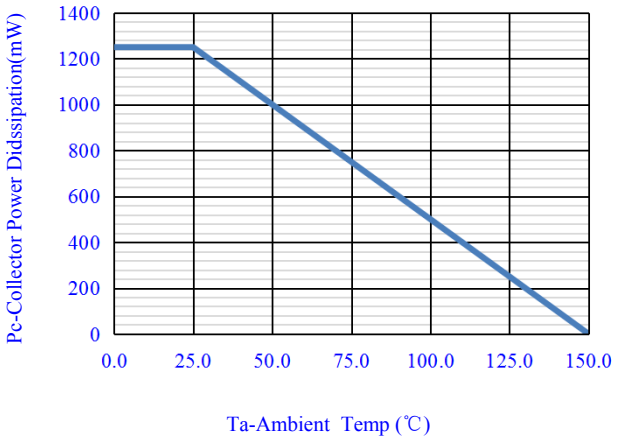

Fig.2-Collector Power Dissipation Vs. Ta

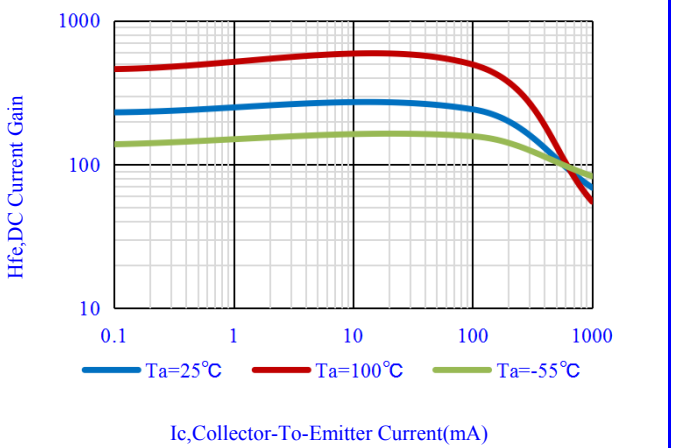

Fig.3-Dc Current Gain Vs. Collector Current

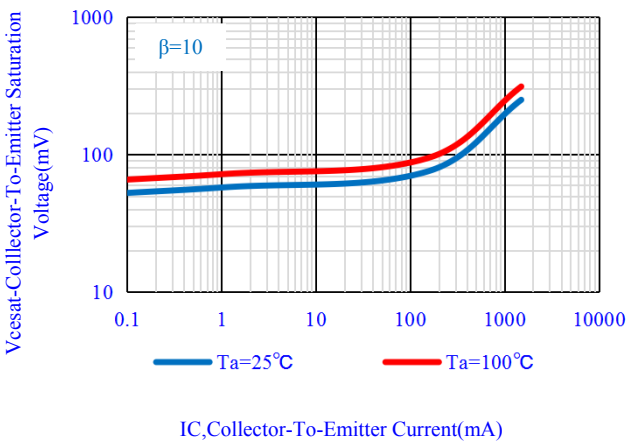

Fig.4-Base-To-Emitter Saturation Voltage Vs. Collector Current

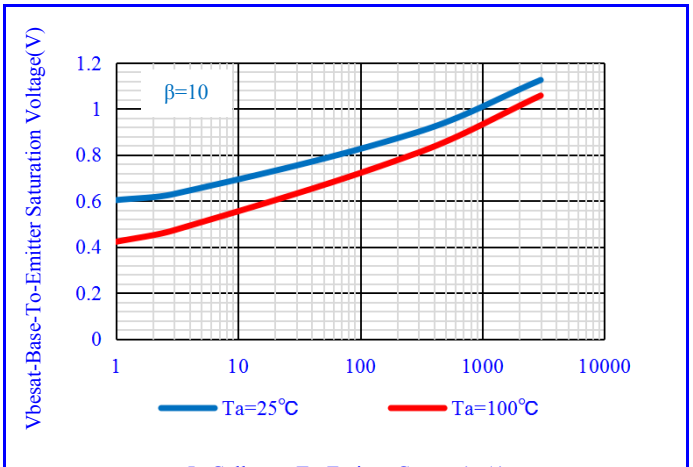

Fig.5-Base-To-Emitter Saturation Voltage Vs. Collector Current

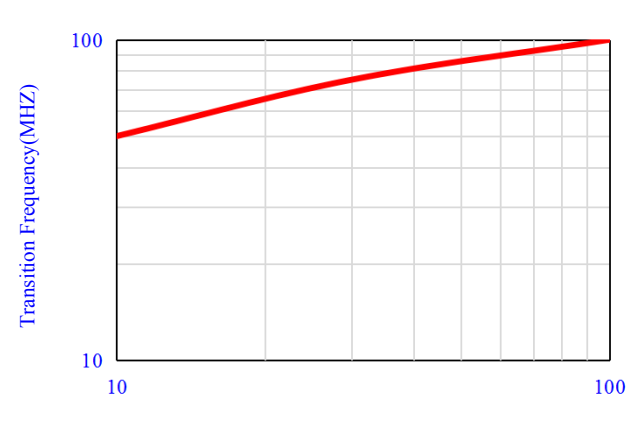

Fig.6-Collector Current Vs.Transition Frequency

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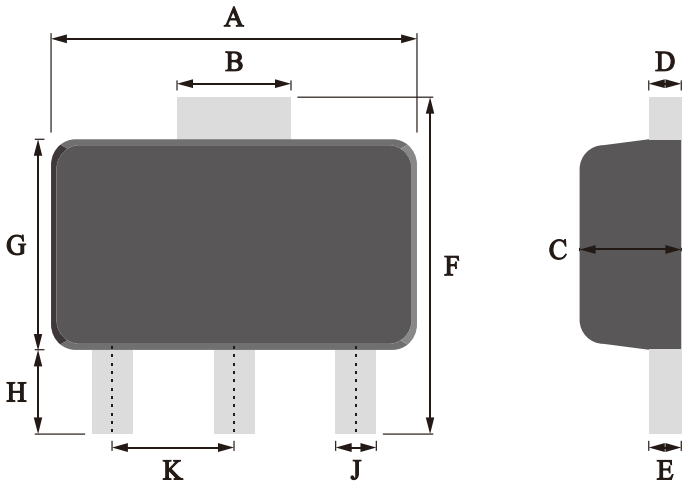
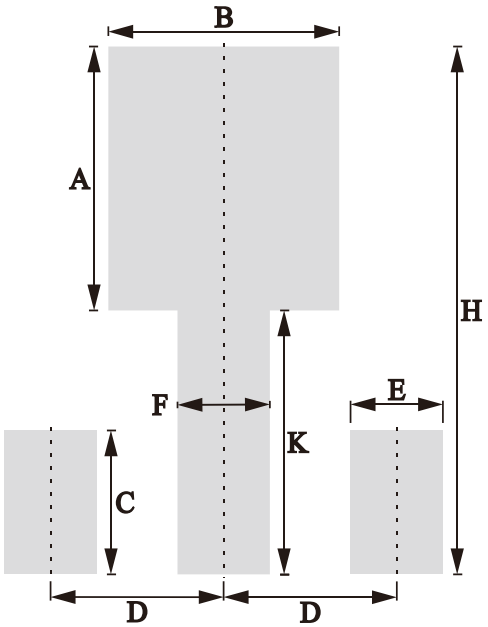
OUTLINE DRAWINGS



SOT-89

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.00	-	5.00	0.1575	-	0.1969
B	1.40	-	1.80	0.0551	-	0.0709
C	1.25	-	1.75	0.0492	-	0.0689
D	0.20	-	0.60	0.0079	-	0.0236
E	0.20	-	0.60	0.0079	-	0.0236
F	3.60	-	4.40	0.1417	-	0.1732
G	2.20	-	2.80	0.0866	-	0.1102
H	0.80	-	1.20	0.0315	-	0.0472
J	0.30	-	0.70	0.0118	-	0.0276
K	1.25	-	1.75	0.0492	-	0.0689

RECOMMEDNED LAYOUT DRAWINGS



SOT-89

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.20	-	-	0.0866	-
B	-	2.00	-	-	0.0787	-
C	-	1.20	-	-	0.0472	-
D	-	1.50	-	-	0.0591	-
E	-	0.80	-	-	0.0315	-
F	-	0.80	-	-	0.0315	-
H	-	47.00	-	-	1.8504	-
K	-	2.20	-	-	0.0866	-

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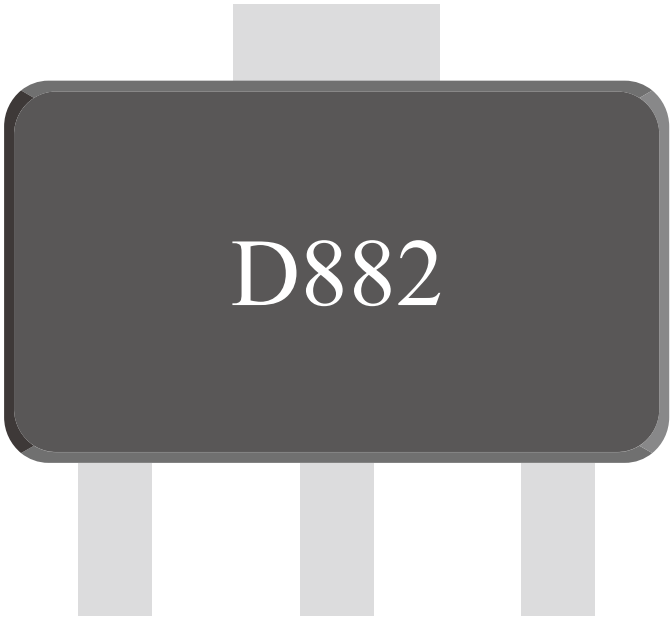
MARKING INFORMATION



MARKING INSTRUCTIONS

D882=Make

PACKING INFORMATION

Package Type	Package Code	Productor Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOT-89	P1	0.055	7" Reel	1000	10000	40000

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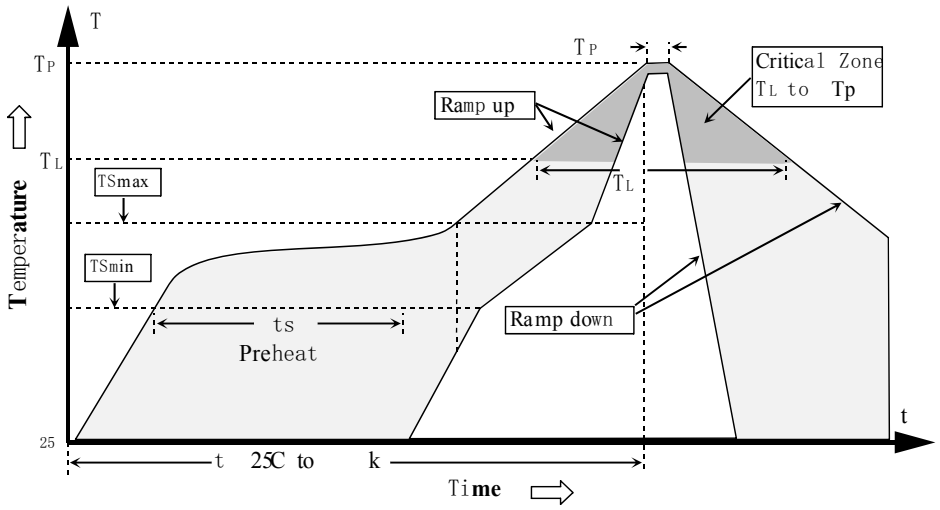
Recommended wave soldering condition

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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