

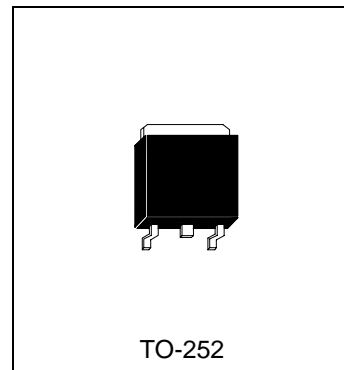


HSD2118J

LOW $V_{CE(sat)}$ TRANSISTOR (20V, 5A)

Feature

- Low $V_{CE(sat)}$, $V_{CE(sat)}=0.6V(Typ.) (I_C=4A/I_B=0.1A)$
- Excellent DC Current Gain Characteristic
- Complements the HSB1386J



Structure

Epitaxial Planar Type NPN Silicon Transistor

Absolute Maximum Ratings ($T_A=25^\circ C$)

- Maximum Temperatures
 - Storage Temperature -55 ~ +150 °C
 - Junction Temperature 150 °C Maximum
- Maximum Power Dissipation
 - Total Power Dissipation ($T_A=25^\circ C$) 1 W
 - Total Power Dissipation ($T_C=25^\circ C$) 10 W
- Maximum Voltages and Currents ($T_A=25^\circ C$)
 - V_{CBO} Collector to Base Voltage 50 V
 - V_{CEO} Collector to Emitter Voltage 20 V
 - V_{EBO} Emitter to Base Voltage 6 V
 - I_C Collector Current 5 A
 - I_C Collector Current (Pulse) 10 A

Electrical Characteristics ($T_A=25^\circ C$)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	50	-	-	V	$I_C=50\mu A$
BV_{CEO}	20	-	-	V	$I_C=1mA$
BV_{EBO}	6	-	-	V	$I_E=50\mu A$
I_{CBO}	-	-	0.5	μA	$V_{CB}=40V$
I_{EBO}	-	-	0.5	μA	$V_{EB}=5V$
$*V_{CE(sat)}^1$	-	0.6	1	V	$I_C/I_B=4A/0.1A$
$*hFE$	180	-	620		$V_{CE}=2V, I_C=0.5A$
fT	-	150	-	MHz	$V_{CE}=6V, I_E=-50mA, f=100MHz$
Cob	-	30	-	pF	$V_{CE}=20V, I_E=0A, f=1MHz$

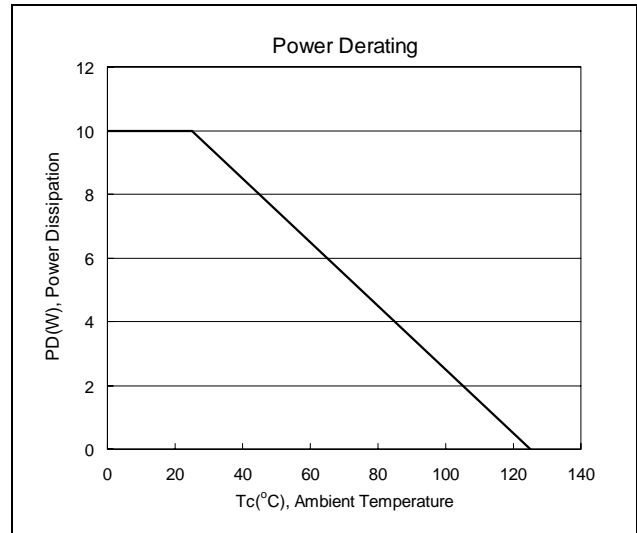
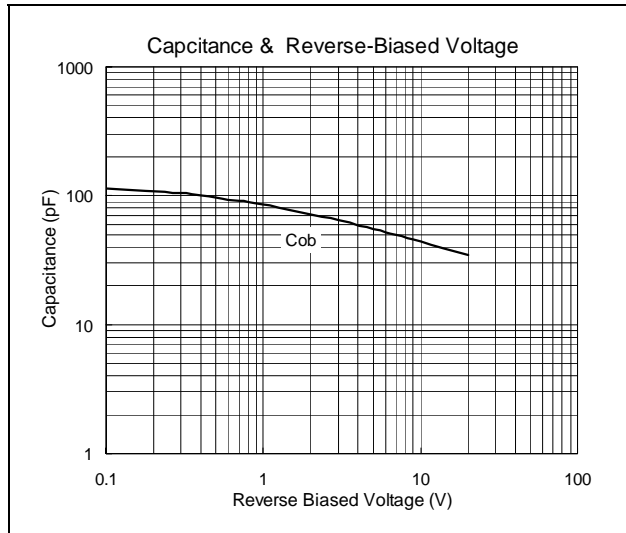
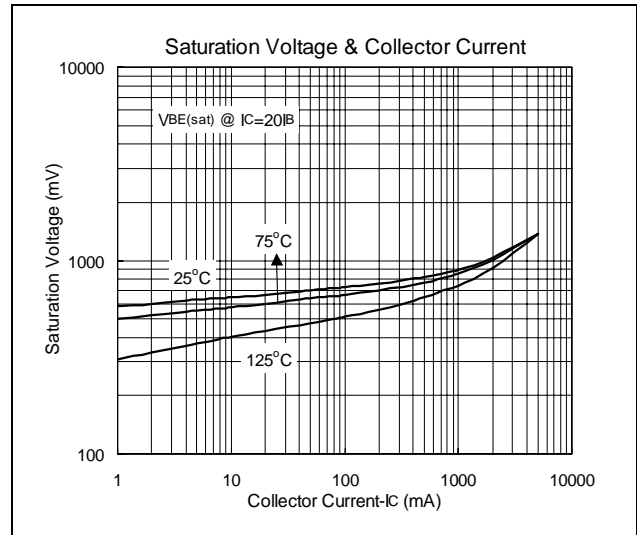
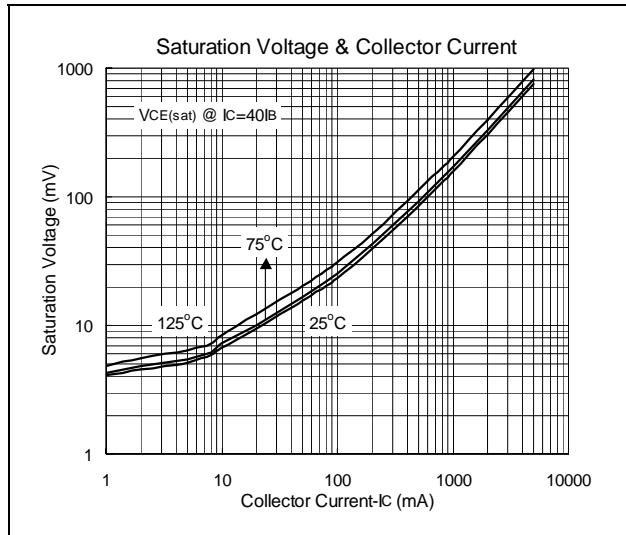
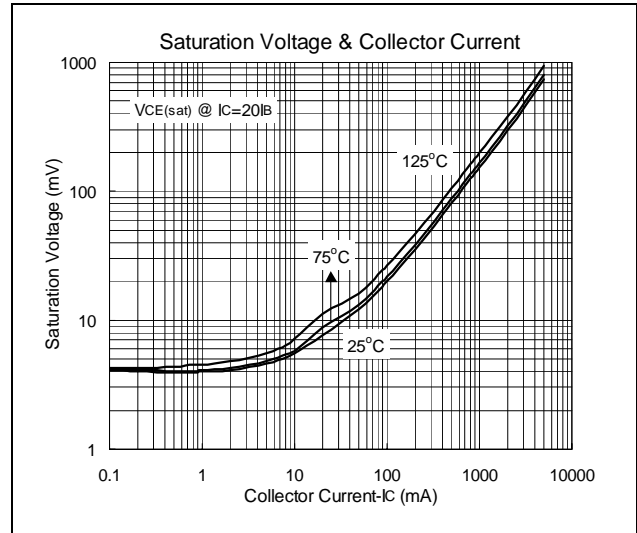
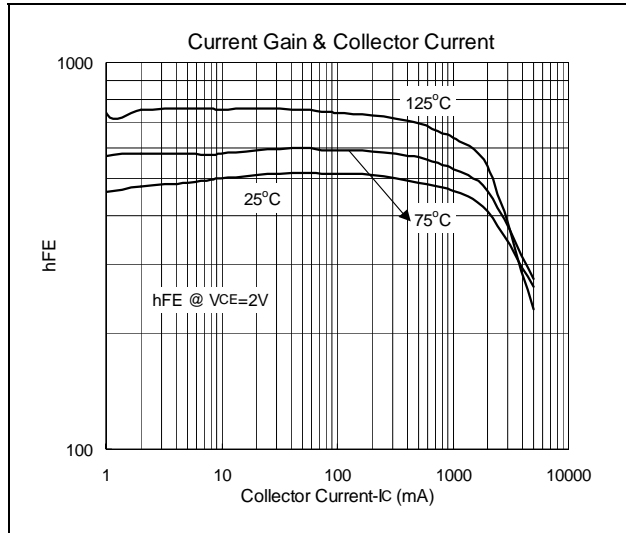
*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

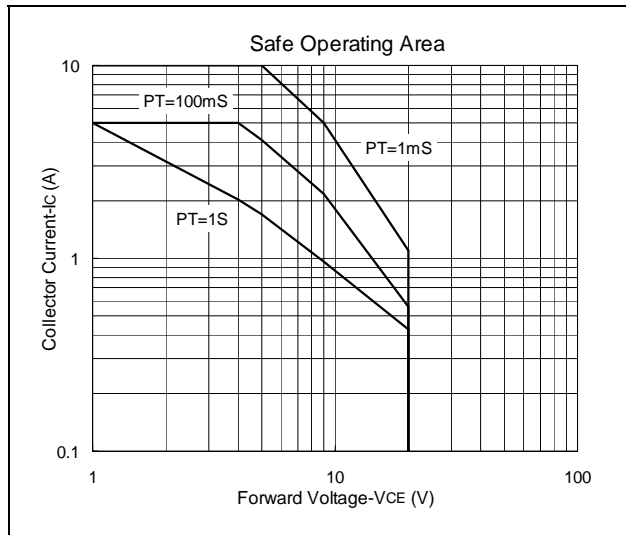
Classification of hFE

Rank	R	E
Range	180-390	370-620



Characteristics Curve







TO-252 Dimension

3-Lead TO-252 Plastic
Surface Mount Package
HSMC Package Code: J

Marking:

Pb Free Mark
 Pb-Free: "●" (None)
 Normal: None

Date Code Control Code

Note: Green label is used for pb-free packing

Pin Style: 1.Base 2.Collector 3.Emitter

Material:

- Lead solder plating: Sn60/Pb40 (Normal), Sn/3.0Ag/0.5Cu or Pure-Tin (Pb-free)
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	6.35	6.80
C	4.80	5.50
F	1.30	1.70
G	5.40	6.25
H	2.20	3.00
L	0.40	0.90
M	2.20	2.40
N	0.90	1.50
a1	0.40	0.65
a2	-	*2.30
a5	0.65	1.05

*: Typical, Unit: mm

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- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	6.40	6.80
B	-	6.00
C	5.04	5.64
D	-	*4.34
E	0.40	0.80
F	0.50	0.90
G	5.90	6.30
H	2.50	2.90
I	9.20	9.80
J	0.60	1.00
K	-	0.96
L	0.66	0.86
M	2.20	2.40
N	0.70	1.10
O	0.82	1.22
a1	0.40	0.60
a2	2.10	2.50
y1	-	5°
y2	-	3°

*: Typical, Unit: mm

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Head Office And Factory:

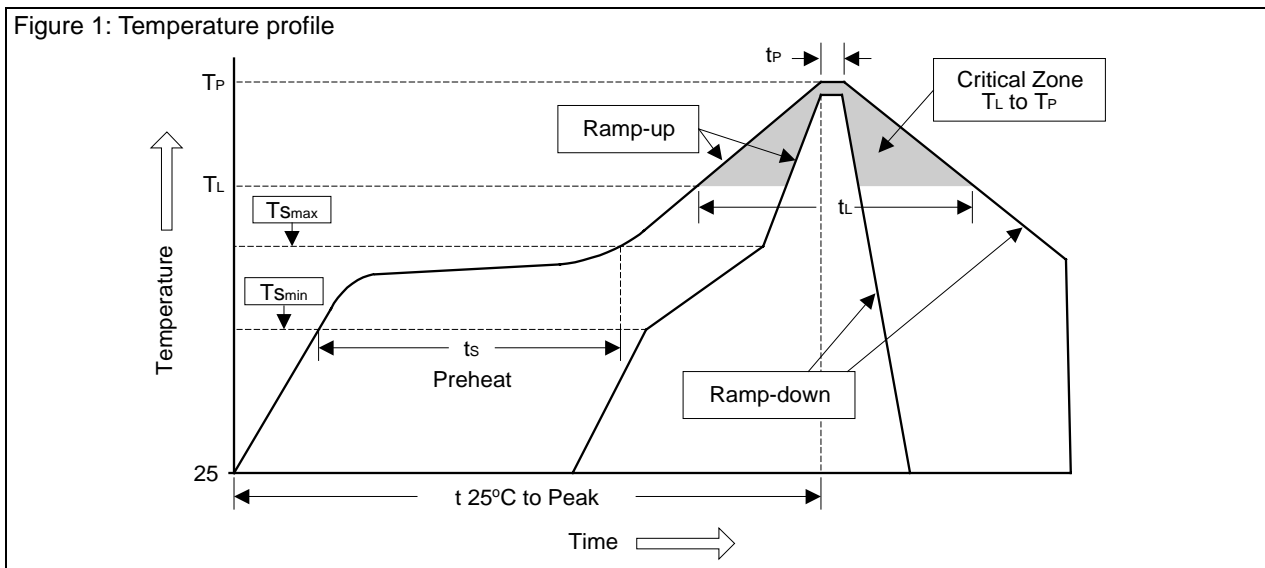
- **Head Office** (Hi-Sincerity Microelectronics Corp.): 10F., No. 61, Sec. 2, Chung-Shan N. Rd. Taipei Taiwan R.O.C.
 Tel: 886-2-25212056 Fax: 886-2-25632712, 25368454
- **Factory 1:** No. 38, Kuang Fu S. Rd., Fu-Kou Hsin-Chu Industrial Park Hsin-Chu Taiwan. R.O.C
 Tel: 886-3-5983621~5 Fax: 886-3-5982931



Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%

2. Reflow soldering of surface-mount devices



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	<3°C/sec	<3°C/sec
Preheat		
- Temperature Min (T_{Smin})	100°C	150°C
- Temperature Max (T_{Smax})	150°C	200°C
- Time (min to max) (t_s)	60~120 sec	60~180 sec
T_{Smax} to T_L		
- Ramp-up Rate	<3°C/sec	<3°C/sec
Time maintained above:		
- Temperature (T_L)	183°C	217°C
- Time (t_L)	60~150 sec	60~150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_p)	10~30 sec	20~40 sec
Ramp-down Rate	<6°C/sec	<6°C/sec
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	5sec ±1sec
Pb-Free devices.	260°C +0/-5°C	5sec ±1sec