



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 $-55 \sim +150^{\circ}C$
Junction Temperature $150^{\circ}C$ 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

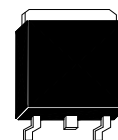
Electrical Characteristics ($T_A=25^{\circ}C$)

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

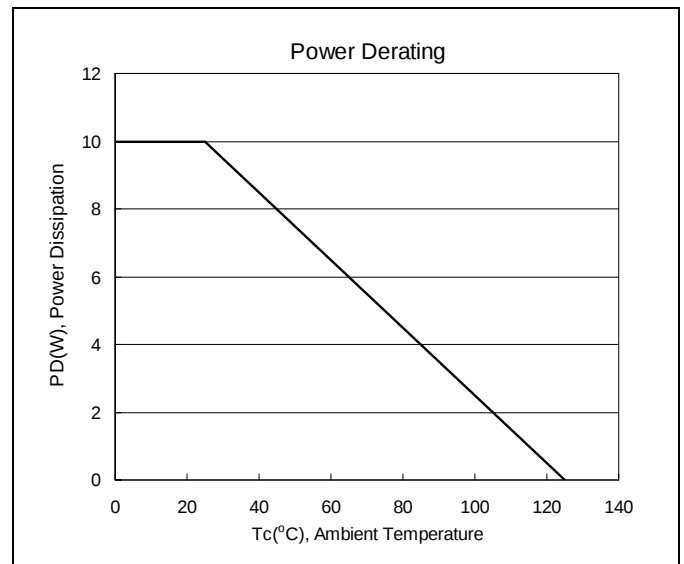
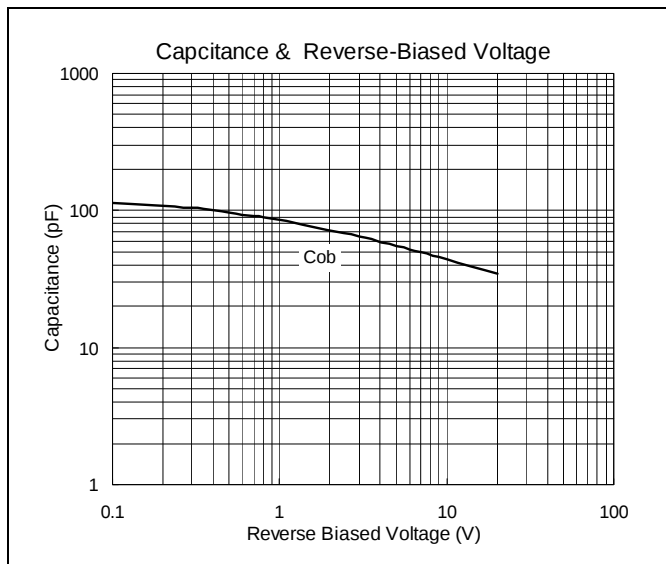
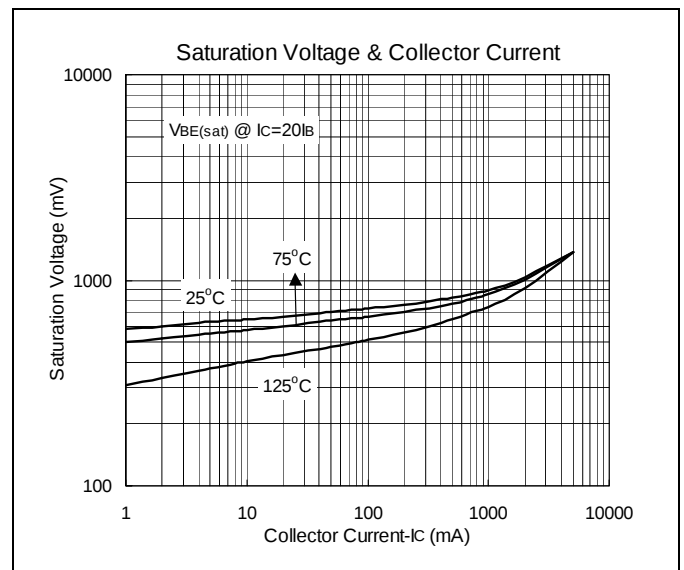
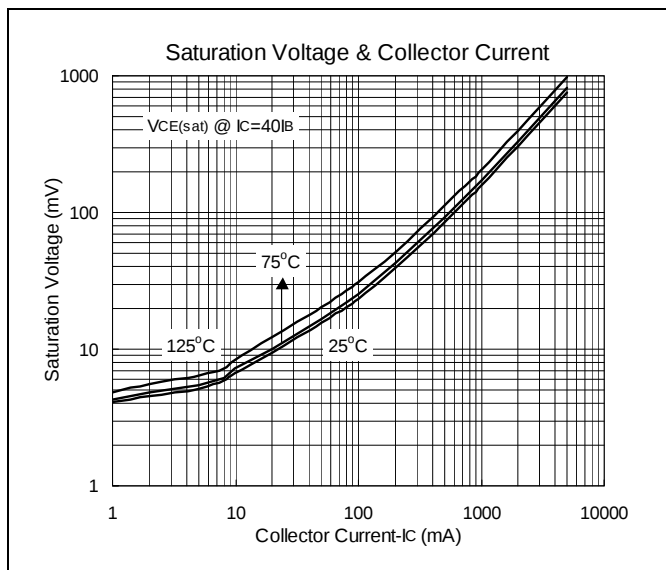
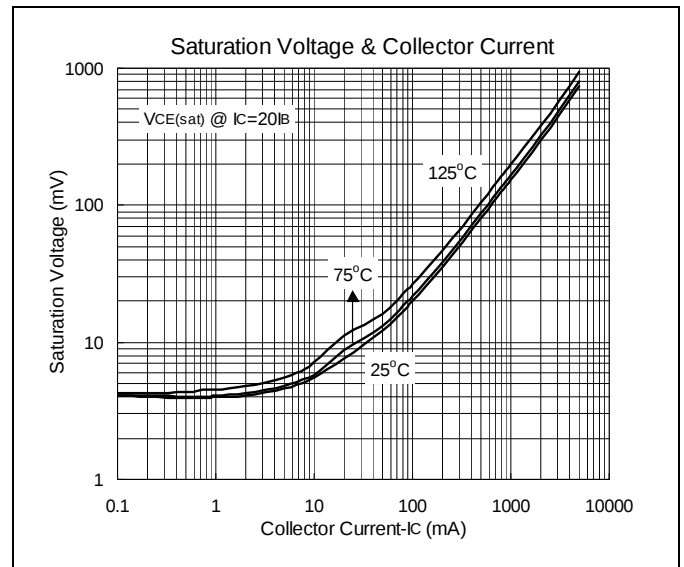
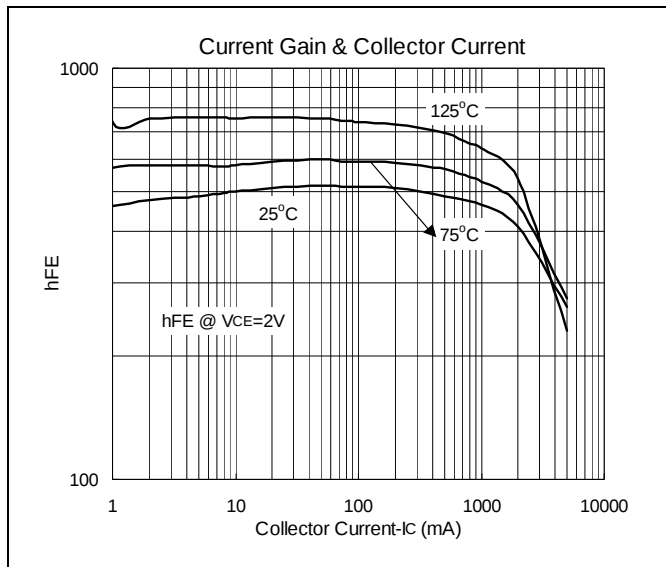
Rank	R	E
Range	180-390	370-620

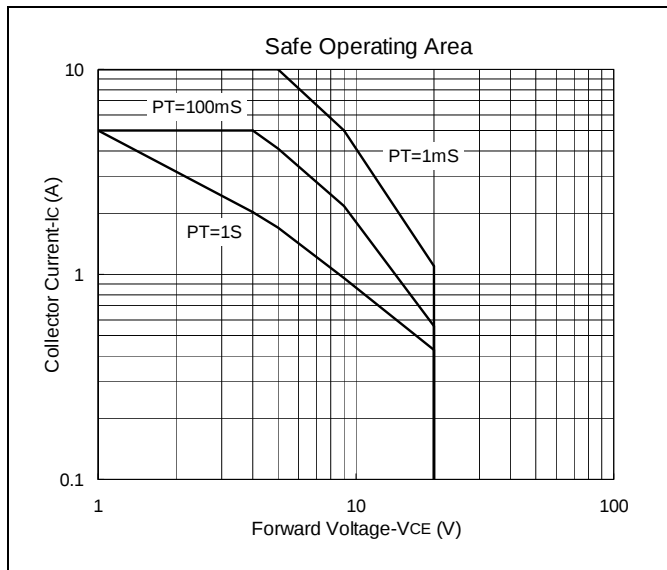


TO-252



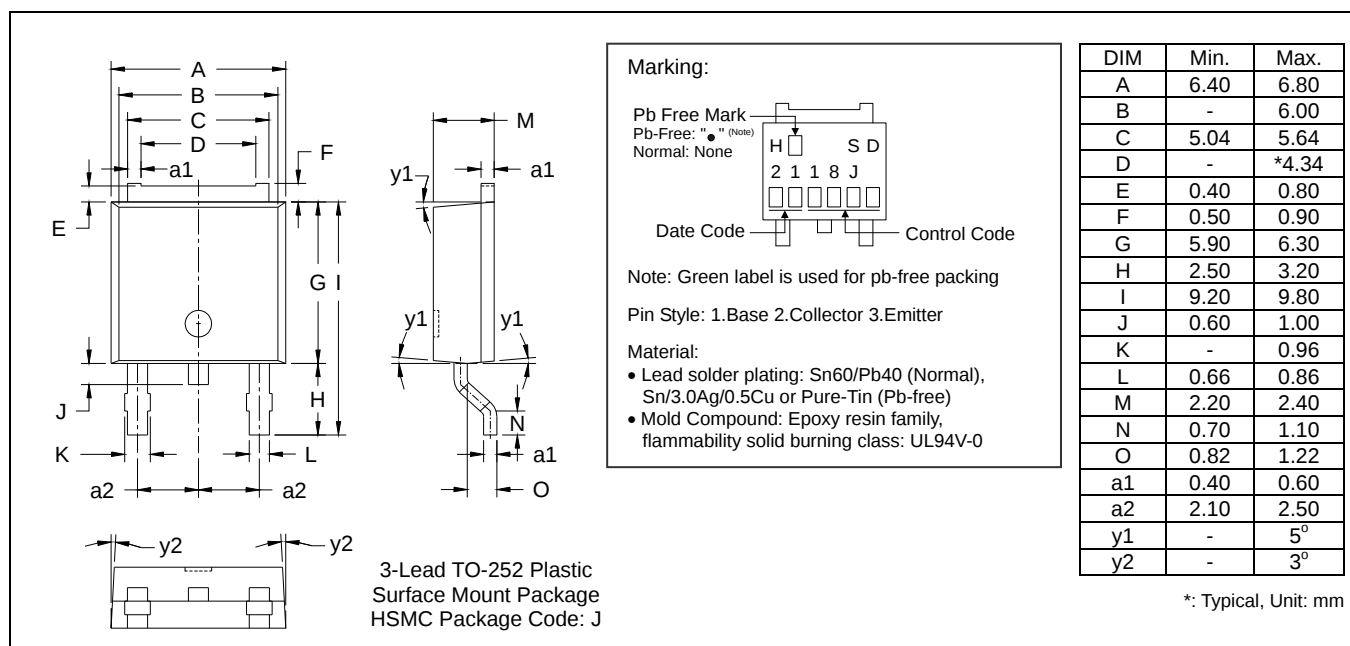
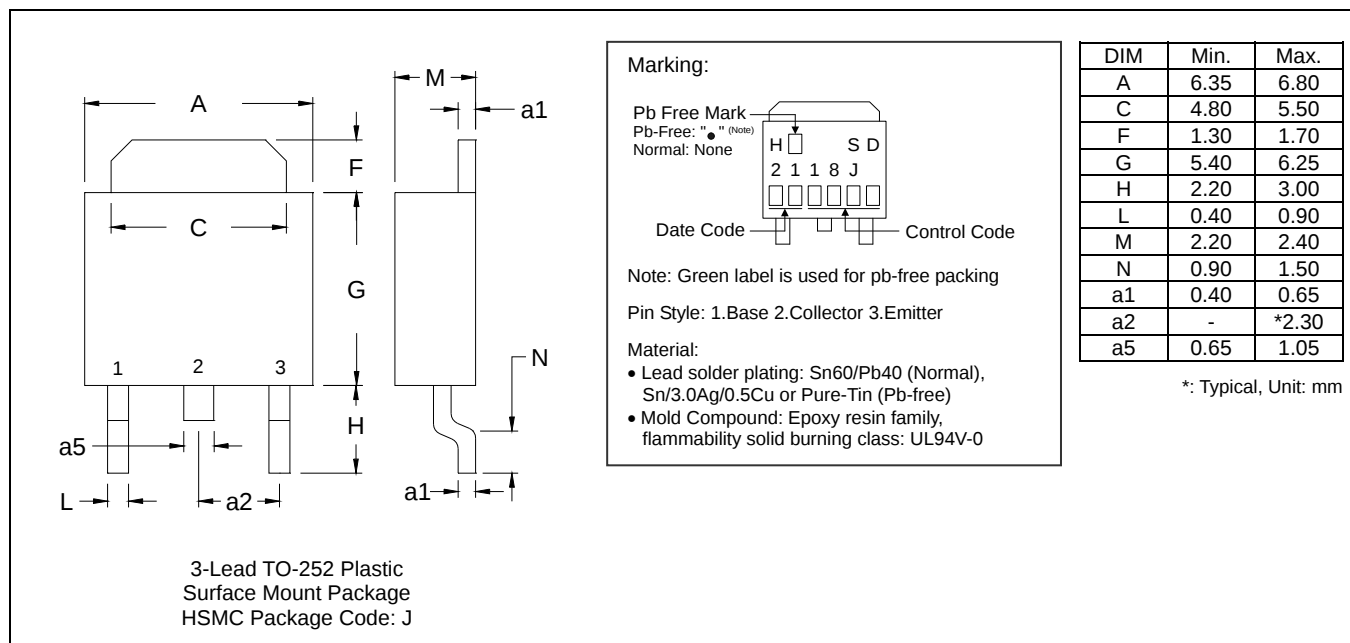
Characteristics Curve







TO-252 Dimension



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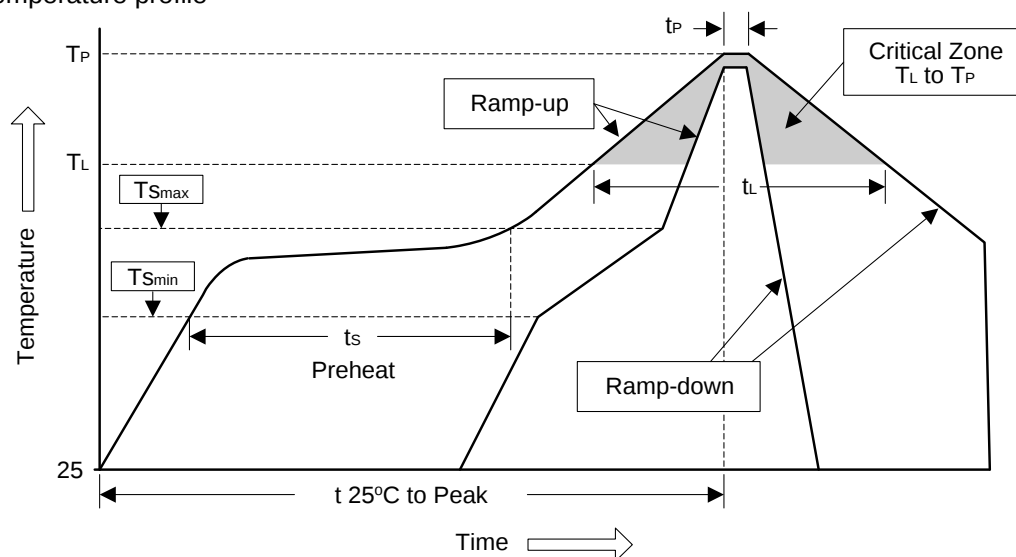
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Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%
2. Reflow soldering of surface-mount devices

Figure 1: Temperature profile



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	10sec ±1sec
Pb-Free devices.	260°C ±5°C	10sec ±1sec