

GENERAL PURPOSE TRANSISTOR PNP SILICON

DESCRIPTION:



The ALPBC856A/B, ALPBC857A/B/C, ALPBC858A/B/C is Ideal for medium power application and switching. Its Capable of 200mW power dissipation.

FEATURES:

- Capable of 200mW power dissipation
- Epitaxial plana chip construction
- Ideal for medium power application and switching
- Capable of 200mW power dissipation
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Compliant to Halogen-free

APPLICATIONS:

- Switching

MECHANICAL CHARACTERISTICS

- Epoxy: UL94-V0 rated flame retardant
- Case: Molded plastic, SOT-23
- Terminals: Solder plated, solderable per
- MIL-STD-750, Method 2026
- Mounting Position: Any.

MAXIMUM RATINGS

MAXIMUM RATINGS @ $T_A = 25^\circ\text{C}$ unless otherwise specified

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base voltage	ALPBC856	V_{CBO}	-80	V
	ALPBC857		-50	
	ALPBC858		-30	
Collector-Emitter voltage	ALPBC856	V_{CEO}	-65	V
	ALPBC857		-45	
	ALPBC858		-30	
Emitter-Base voltage		V_{EBO}	-5.0	V
Collector current-continuous		I_C	-100	mAdc

THERMAL CHARACTERISTICS

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector Power Dissipation $T_C = 25^\circ\text{C}$	P_C			200	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$		625		$^\circ\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55		+150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55		+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS @ T_A = 25 °C unless otherwise specified

PARAMETER		CONDITIONS	SYMBOL	MIN	TYP.	MAX	UNIT
OFF CHARACTERISTICS							
Collector-Base breakdown voltage	ALPBC856 SERIES	$I_C = -10\mu A, I_E = 0$	$V_{(BR)CBO}$	-80			V
	ALPBC857 SERIES			-50			
	ALPBC858 SERIES			-30			
Collector-Emitter breakdown voltage	ALPBC856 SERIES	$I_C = -10mA, I_B = 0$	$V_{(BR)CEO}$	-65			V
	ALPBC857 SERIES			-45			
	ALPBC858 SERIES			-30			
Emitter-Base breakdown voltage	ALPBC856 SERIES	$I_E = -1.0\mu A, I_C = 0$	$V_{(BR)EBO}$	-5.0			V
	ALPBC857 SERIES			-5.0			
	ALPBC858 SERIES			-5.0			
Collect Cut-Off Current	ALPBC856 SERIES	$V_{CB} = -70V, I_E = 0$	I_{CBO}			-100	nA
	ALPBC857 SERIES	$V_{CB} = -45V, I_E = 0$					
	ALPBC858 SERIES	$V_{CB} = -25V, I_E = 0$					
Emitter Cut-Off Current		$V_{CB} = -5V, I_E = 0V$	I_{EBO}			-100	nA

ON CHARACTERISTICS							
PARAMETER		CONDITIONS	SYMBOL	MIN	TYP.	MAX	UNIT
DC current gain	ALPBC856A, ALPBC857A, ALPBC858A	$I_C = -2.0mA, V_{CE} = -5.0V$	h_{FE}	125		250	
	ALPBC856B, ALPBC857B, ALPBC858B			220		475	
	ALPBC857C, ALPBC858C			420		800	
Collector-Emitter Saturation voltage		$I_C = -100mA, I_B = -5.0mA$	$V_{CE(sat)}$			-0.50	V
Base-Emitter Saturation voltage		$I_C = -100mA, I_B = -5.0mA$	$V_{BE(sat)}$			-1.10	V

SMALL-SIGNAL CHARACTERISTICS							
PARAMETER	CONDITIONS		SYMBOL	MIN	TYP.	MAX	UNIT
Current-gain-bandwidth product	$I_C = -10mA, V_{CE} = -5.0Vdc, f = 100MHz$		f_T	100			MHz
Output Capacitance	$V_{CB} = -5.0V, f = 1.0MHz$		C_{obo}			4.5	pF

TYPICAL DEVICE RATING AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)

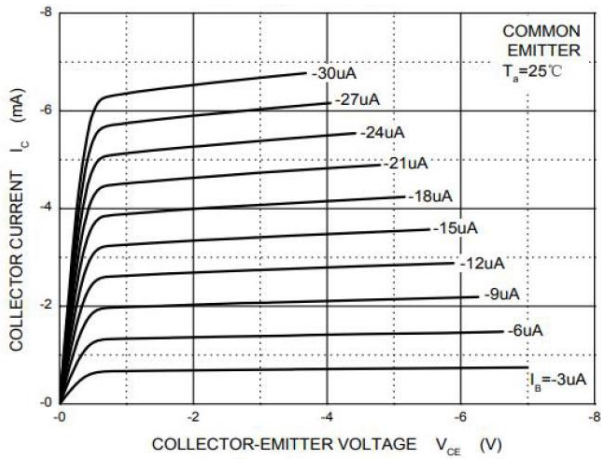


Fig.1 STATIC CHARACTERISTICS

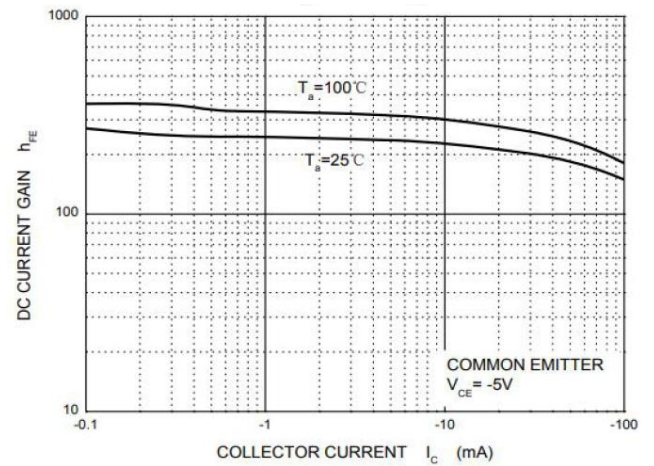


Fig.2 h_{FE} vs. I_C

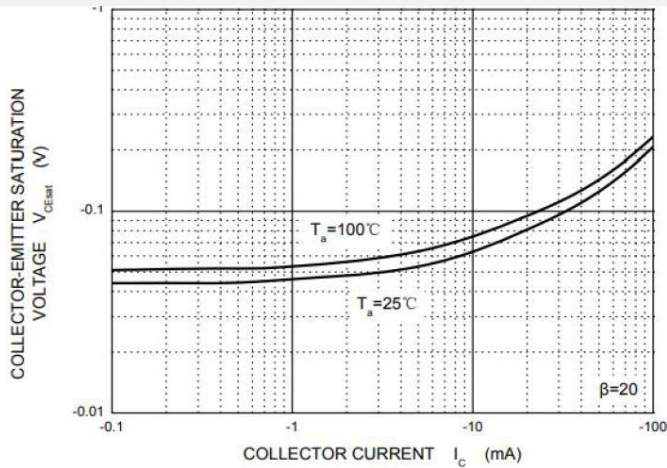


Fig.3 $V_{CE(sat)}$ vs. I_C

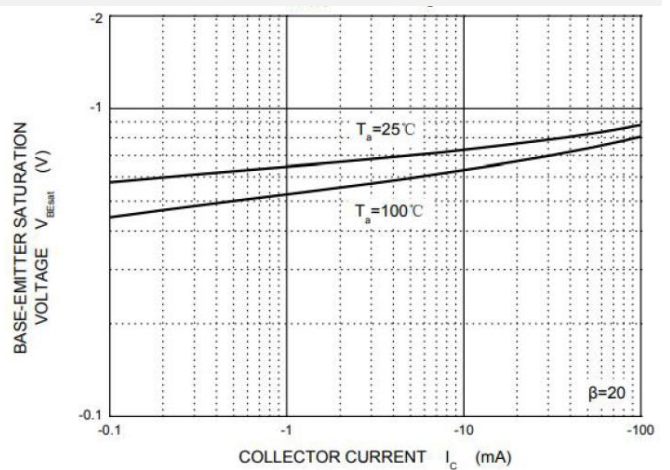


Fig.4 $V_{BE(sat)}$ vs. I_C

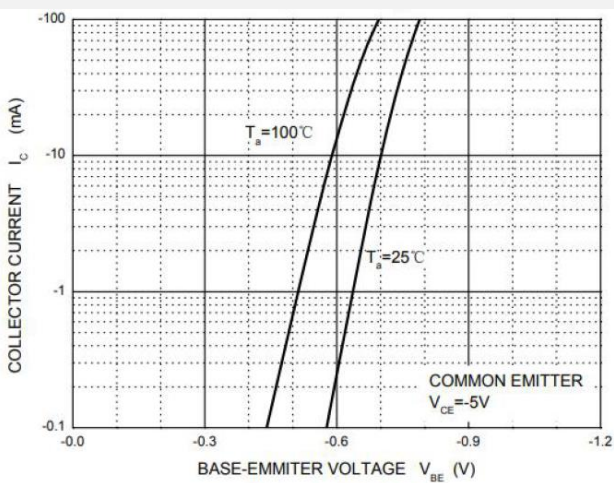


Fig.5 I_C vs. V_{BE}

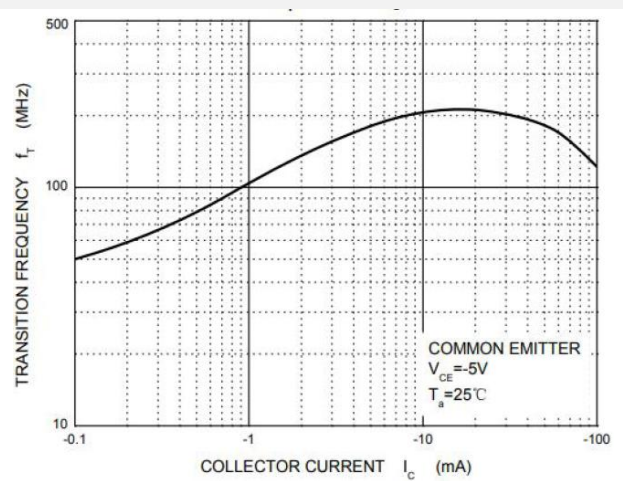


Fig.6 f_T vs. I_C

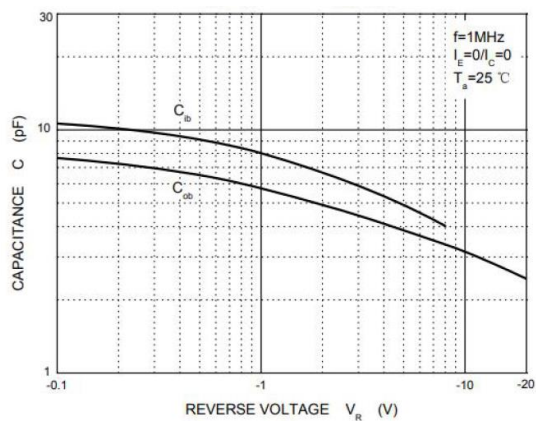


Fig.7 C_{ob} / C_{ib} vs. V_{CB} / V_{EB}

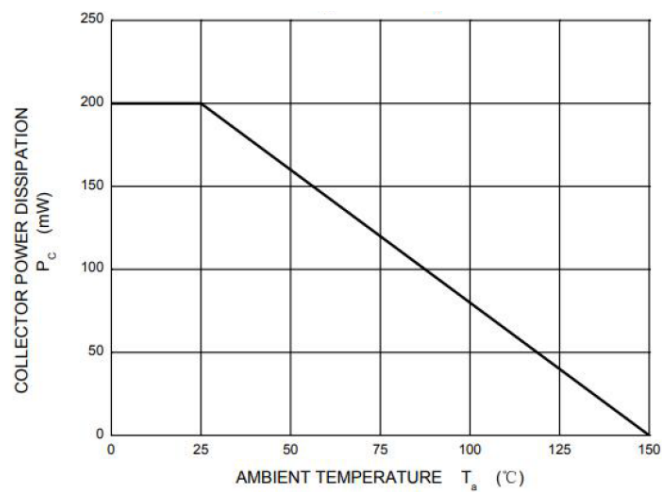
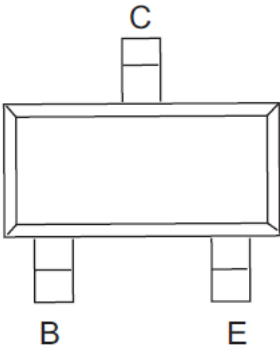
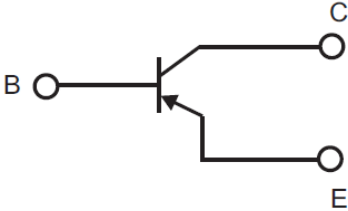


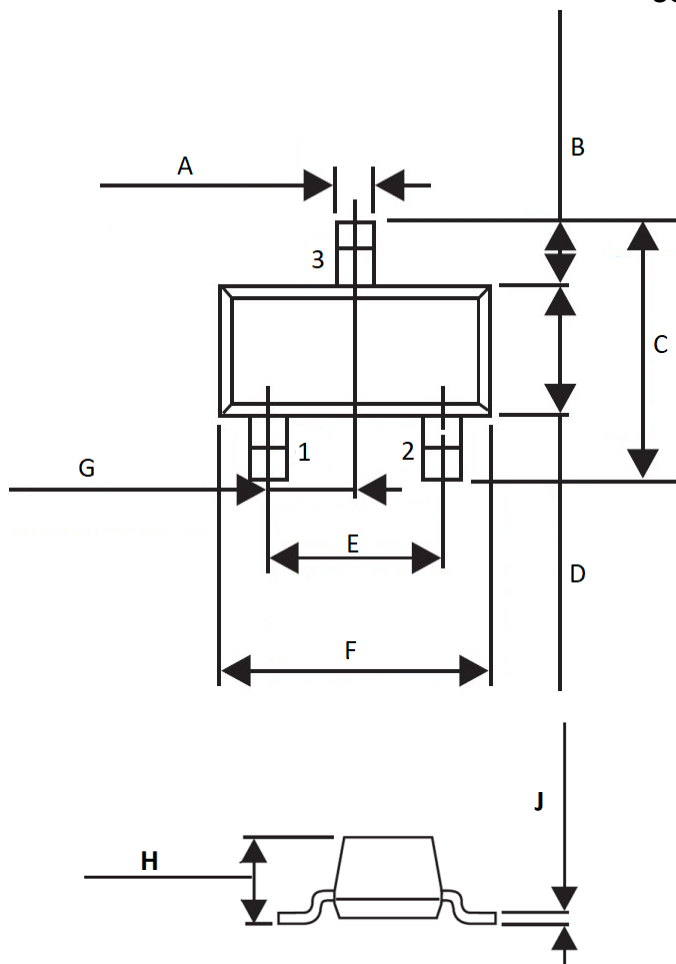
Fig.8 P_c vs. T_a

PINNING INFORMATION

PIN	SIMPLIFIED OUTLINE	SYMBOL
Pin B Base Pin C Collector Pin E Emitter		

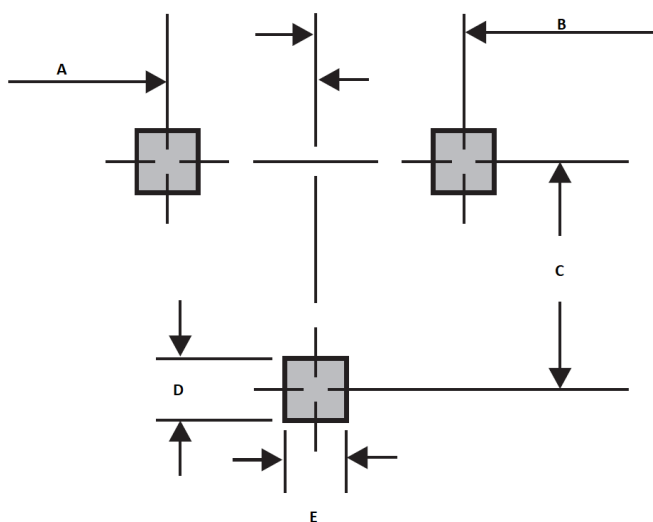
PACKAGE INFORMATION

SOT-23



OUTLINE DIMENSIONS				
SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.30	0.50	0.012	0.020
B	0.32	0.67	0.013	0.027
C	2.10	2.75	0.083	0.108
D	1.20	1.60	0.047	0.063
E	1.70	2.10	0.068	0.084
F	2.80	3.04	0.110	0.120
G	0.85	1.15	0.034	0.045
H	0.89	1.30	0.035	0.051
J	0.09	0.18	0.003	0.007

PAD LAYOUT

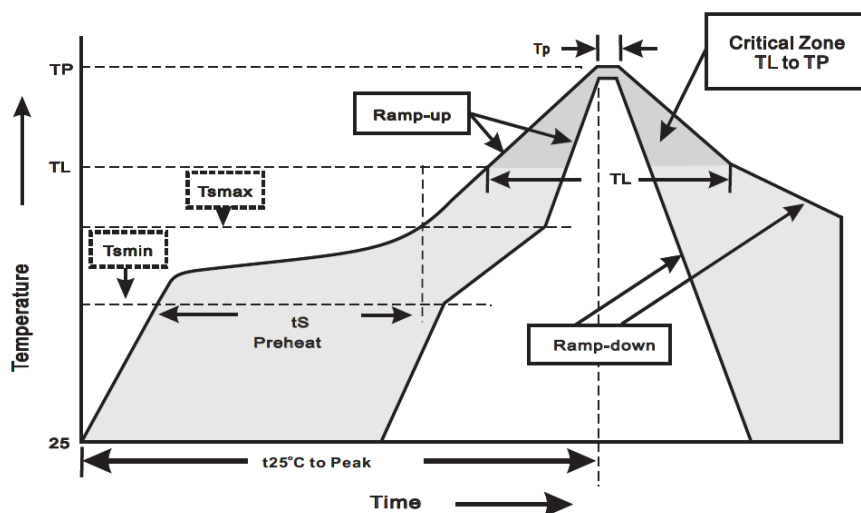


OUTLINE DIMENSIONS		
SYMBOL	MILLIMETERS	INCHES
A	0.95	0.037
B	0.95	0.037
C	2.00	0.079
D	0.90	0.035
E	0.80	0.031

SOLDERING PARAMETERS

SUGGESTED THERMAL PROFILES FOR SOLDERING PROCESSES

1. Storage environment: Temperature=5 °C~40 °C Humidity=55% ±25%
2. Reflow soldering of surface-mount devices



3. Reflow soldering

PROFILE FEATURE	SOLDERING CONDITION
Average ramp-up rate (T_L to T_P)	<3 °C/sec
Preheat	
- Temperature Min (T_{smin})	150 °C
- Temperature Max (T_{smax})	200 °C
- Time (min to max) (t_s)	60 ~ 120 sec
T_{smax} to T_L	
- Ramp-upRate	<3 °C/sec
Time maintained above:	
- Temperature (T_L)	217 °C
- Time(t_L)	60 ~ 260 sec
Peak Temperature (T_P)	255 °C-0/+5 °C
Time within 5 °C of actual Peak Temperature(t_P)	10 ~ 30 sec
Ramp-down Rate	<6 °C/sec
Time 25 °C to Peak Temperature	<6 minutes

CUSTOMER NOTE:

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1. ALPINESEMI™ Semiconductor Devices are RoHS compliant and hence customers are requested to dispose as per the prevailing Environmental Legislation put forth in their specific country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).



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