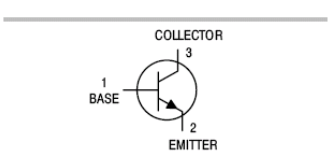
40 V Low NPN Transistor PBSS4140U

FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation

Lead-free



SOT-323

APPLICATIONS

- General purpose switching and muting
- LCD back lighting
- Supply line switching circuits
- Battery driven equipment (mobile phones, video cameras and hand-held devices).

ORDERING INFORMATION

Type No.	Marking	Package Code
PBSS4140U	41t	SOT-323

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	1	A
P_{tot}	total power dissipation Tamb ≤ 25℃; note 1	250	mW
	Tamb ≤ 25℃; note 2	350	mW
T_{stg}	Storage Temperature	-65 to +150	℃
T_j	Junction Temperature	150	℃
T_{amp}	operating ambient temperature	-65 to +150	℃

Notes

1. Device mounted on a printed-circuit board, single sided copper, tinplated and standard footprint.

2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm^2.

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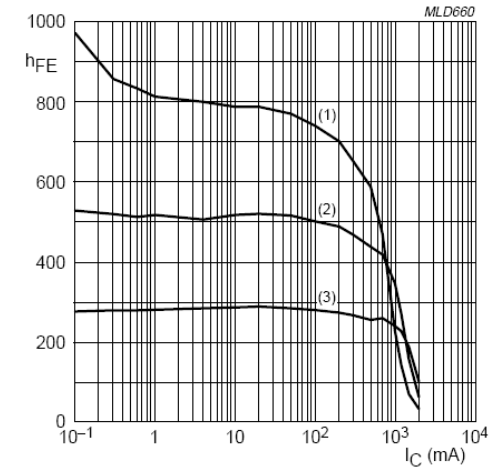
ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

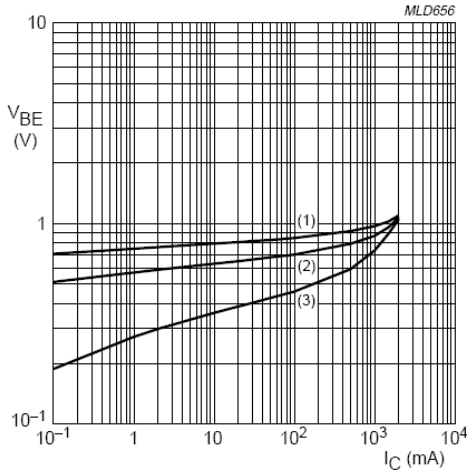
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector cut-off current	I_{CBO}	V_{CB}=40V,I_E=0			0.1	μA
Collector- Emitter cut-off current	I_{CEO}	V_{CB}=30V,I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V,I_C=0			0.1	μA
DC current gain	h_{FE}	V_{CE}=5V,I_C=1 mA V_{CE}=5V,I_C=500 mA V_{CE}=5V,I_C=1A	300 300 200		900	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=100mA, I_B=1mA I_C=500mA, I_B=50mA I_C=1A, I_B=100mA			200 250 500	mV
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=1A, I_B=100mA			1.2	V
base-emitter turn-on voltage	V_{BEon}	V_{CE}=5V,I_C=1 A			1.1	V
Transition frequency	f_T	V_{CE}=10V, I_C=50mA,f=100MHz	150			MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,f=1MHz			10	pF

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



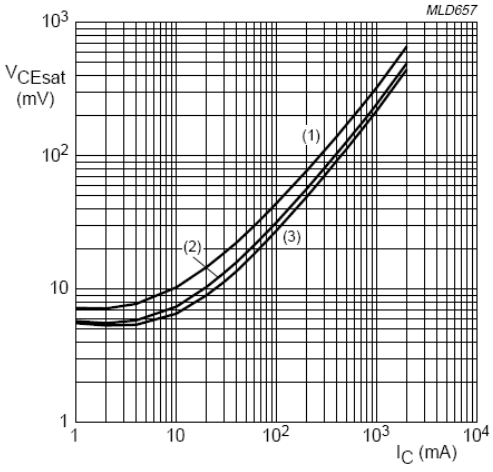
V_{CE} = 5 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = –55 °C.

Fig.2 DC current gain as a function of collector current; typical values.



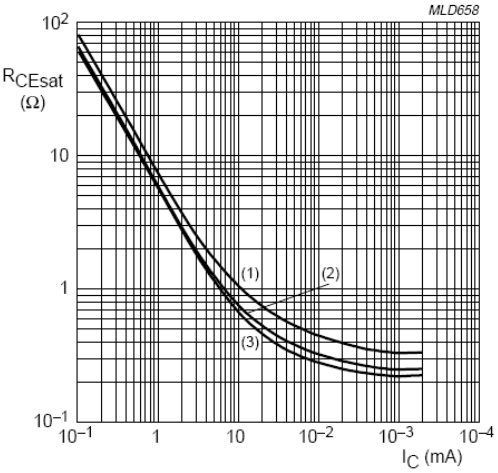
V_{CE} = 5 V.
(1) T_{amb} = –55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.3 Base-emitter voltage as a function of collector current; typical values.



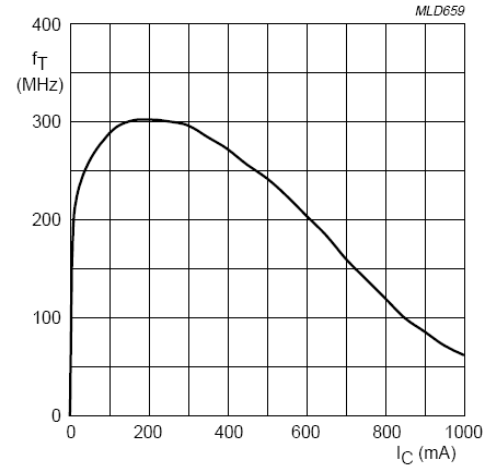
I_C/I_B = 10.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = –55 °C.

Fig.4 Collector-emitter saturation voltage as a function of collector current; typical values.



I_C/I_B = 10.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = –55 °C.

Fig.5 Equivalent on-resistance as a function of collector current; typical values.



V_{CE} = 10 V.

Fig.6 Transition frequency as a function of collector current; typical values.

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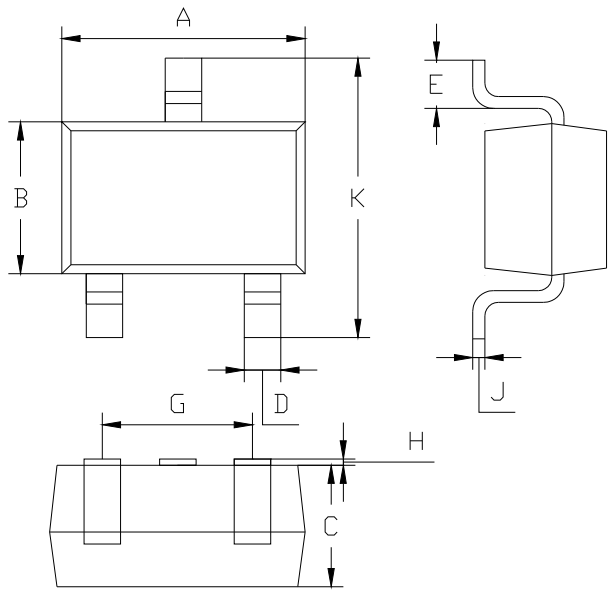
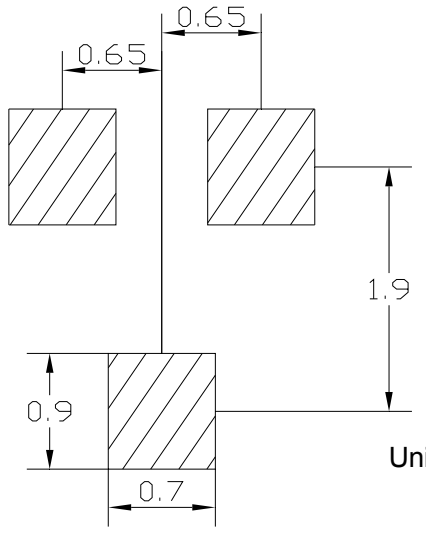
PACKAGE OUTLINE

Plastic surface mounted package SOT-323



SOT-323		
Dim	Min	Max
A	1.8	2.2
B	1.15	1.35
C	1.0Typical	
D	0.15	0.35
E	0.25	0.40
G	1.2	1.4
H	0.02	0.1
J	0.1Typical	
K	2.2	2.4
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
PBSS4140U	SOT-323	3000/Tape&Reel