



PBSS4140T NPN Transistor

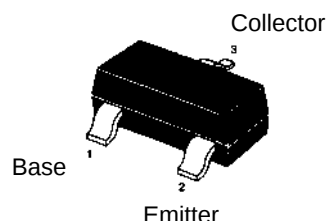
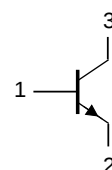
FEATURES

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

APPLICATIONS

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

Marking : Z T



SOT-23

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter		Symbol	Value	Unit
Collector Base Voltage		V_{CBO}	40	V
Collector Emitter Voltage		V_{CEO}	30	V
Emitter Base Voltage		V_{EBO}	5	V
Collector Current (DC)		I_C	1	A
Peak Collector Current		I_{CM}	2	A
Peak Base Current		I_{BM}	1	A
Total Power Dissipation	$T_{amb} \leq 25^\circ\text{C}^{1)}$	P_{tot}	200	mW
	$T_{amb} \leq 25^\circ\text{C}^{2)}$		450	
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_s	-65 to +150	$^\circ\text{C}$
Thermal Resistance From Junction to Ambient	In free air ¹⁾	$R_{th\ j-a}$	417	K/W
	In free air ²⁾		278	
Operating Ambient Temperature		T_{amb}	-65 to +150	$^\circ\text{C}$

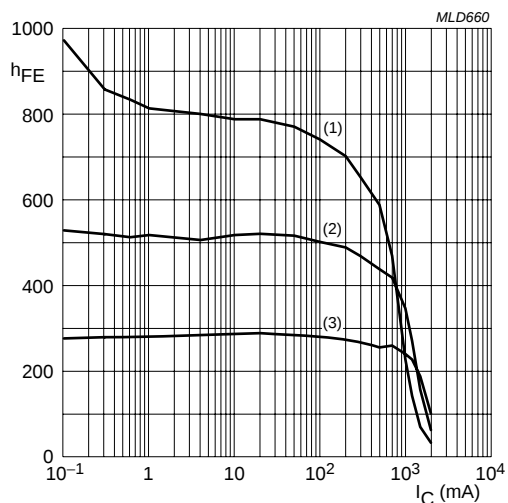
¹⁾ Device mounted on a printed-circuit board; single sided copper; tinplated; standard footprint.

²⁾ Device mounted on a printed-circuit board; single sided copper; tinplated; mounting pad for collector 1cm².



Characteristics at $T_{amb}=25\text{ }^{\circ}\text{C}$

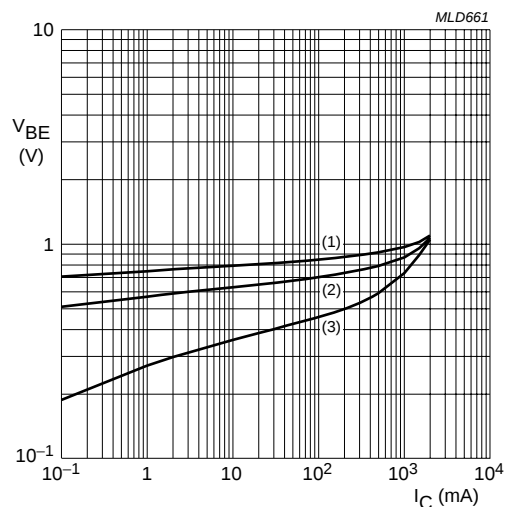
Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain					
at $V_{CE}=5V$, $I_C=1mA$	h_{FE}	300	-	-	
at $V_{CE}=5V$, $I_C=500mA$	h_{FE}	300	-	900	
at $V_{CE}=5V$, $I_C=1A$	h_{FE}	200	-	-	
Collector-Base Cutoff Current					
at $V_{CB}=40V$	I_{CBO}	-	-	100	nA
at $V_{CB}=40V$, $T_{amb}=150\text{ }^{\circ}\text{C}$		-	-	50	μA
Collector-Emitter Cutoff Current					
at $V_{CE}=30V$	I_{CEO}	-	-	100	nA
Emitter-Base Cutoff Current					
at $V_{EB}=5V$	I_{EBO}	-	-	100	nA
Collector-Emitter Saturation Voltage					
at $I_C=100mA$, $I_B=1mA$	$V_{CE(sat)}$	-	-	200	mV
at $I_C=500mA$, $I_B=50mA$		-	-	250	
at $I_C=1A$, $I_B=100mA$		-	-	500	
Base-Emitter Saturation Voltage					
at $I_C=1A$, $I_B=100mA$	$V_{BE(sat)}$	-	-	1.2	V
Base-Emitter Turn-on Voltage					
at $V_{CE}=5V$, $I_C=1A$	$V_{BE(on)}$	-	-	1.1	V
Transition Frequency					
at $V_{CE}=10V$, $I_C=50mA$, $f=100MHz$	f_T	150	-	-	HMz
Collector Capacitance					
at $V_{CB}=10V$, $f=1MHz$	C_C	-	-	10	pF



$V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = 150^\circ\text{C}$.
- (2) $T_{amb} = 25^\circ\text{C}$.
- (3) $T_{amb} = -55^\circ\text{C}$.

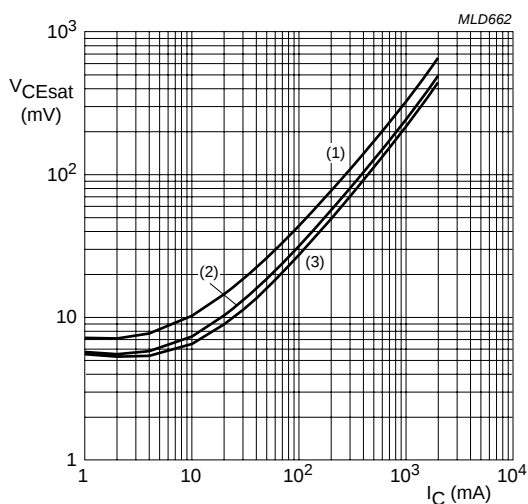
DC current gain as a function of collector current; typical values.



$V_{CE} = 5\text{ V}$.

- (1) $T_{amb} = -55^\circ\text{C}$.
- (2) $T_{amb} = 25^\circ\text{C}$.
- (3) $T_{amb} = 150^\circ\text{C}$.

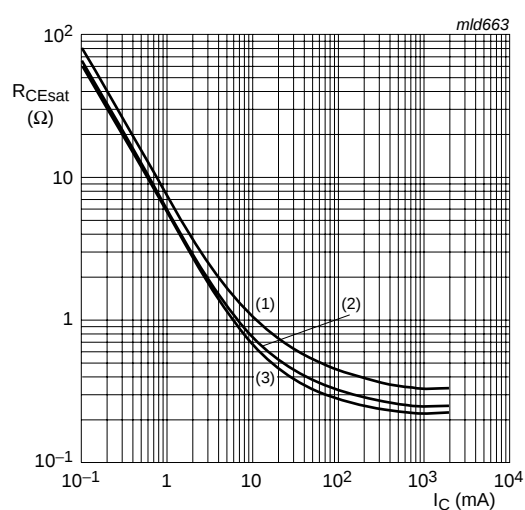
Base-emitter voltage as a function of collector current; typical values.



$I_C/I_B = 10$.

- (1) $T_{amb} = 150^\circ\text{C}$.
- (2) $T_{amb} = 25^\circ\text{C}$.
- (3) $T_{amb} = -55^\circ\text{C}$.

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



$I_C/I_B = 10$.

- (1) $T_{amb} = 150^\circ\text{C}$.
- (2) $T_{amb} = 25^\circ\text{C}$.
- (3) $T_{amb} = -55^\circ\text{C}$.

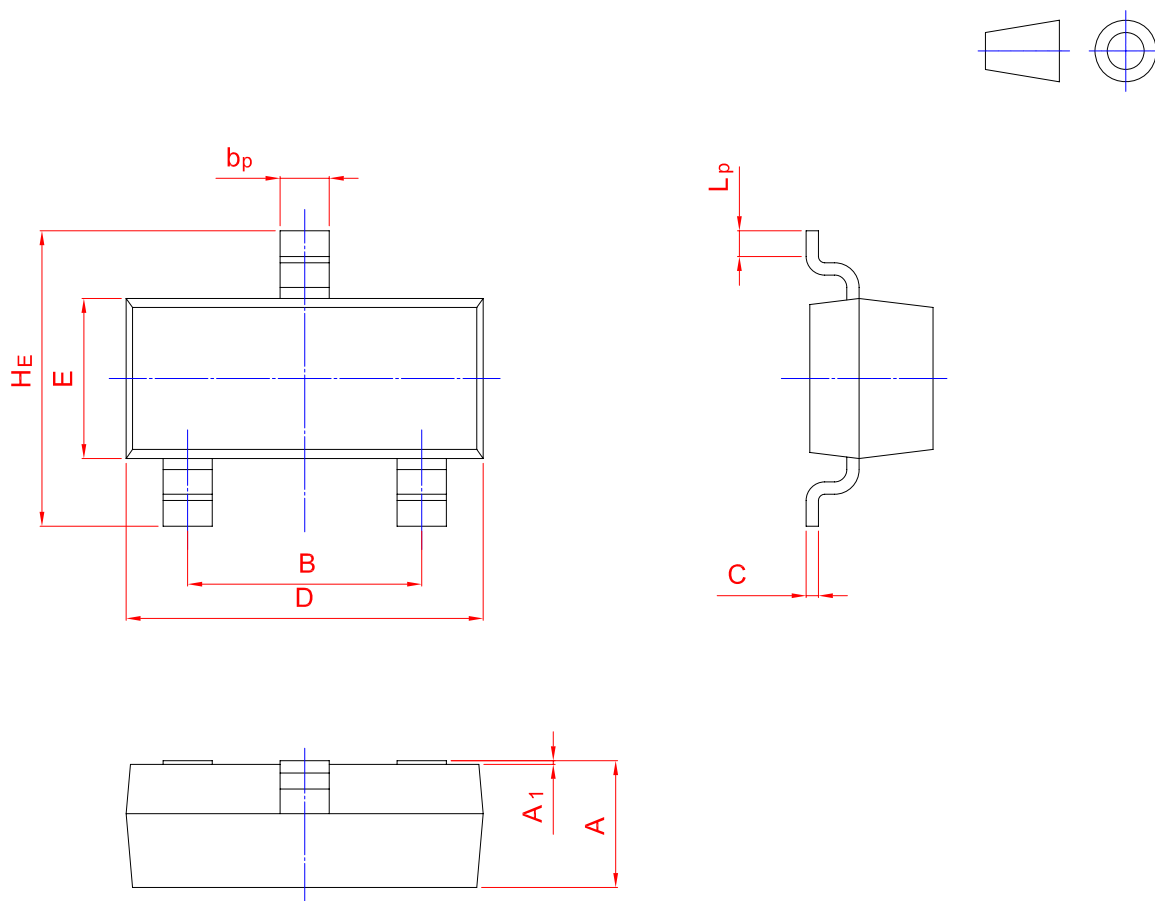
Equivalent on-resistance as a function of collector current; typical values.



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

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UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20