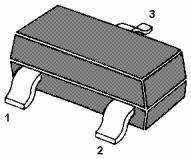
PBSS4240

40V; 2A NPN Low $V_{CE(sat)}$ (BISS) Transistor

SOT-23



1.BASE 2.EMITTER 3.COLLECTOR

FEATURES

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

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).

Absolute Maximum Ratings (T_a = 25 °C)

		Symbol	Value	Unit
Collector Base Voltage		V_{CBO}	40	V
Collector Emitter Voltage		V_{CEO}	40	V
Emitter Base Voltage		V_{EBO}	5	V
Collector Current (DC)		I_C	2	A
Peak Collector Current		I_{CM}	3	A
Peak Base Current		I_{BM}	300	mA
Total Power Dissipation	$T_{amb} \leqq 25°C$ [1]	P_{tot}	200	mW
	$T_{amb} \leqq 25°C$ [2]		480	
Junction Temperature		T_J	150	°C
Storage Temperature Range		T_S	-65 to +150	°C
Thermal Resistance From Junction to Ambient	In free air [1]	$R_{th\ j\text{-}a}$	417	K/W
	In free air [2]		260	
Operating Ambient Temperature		T_{amb}	-65 to +150	°C

[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; mounting pad for collector 1cm^2.

Characteristics at T_{amb}=25 °C

	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain					
at V_{CE}=2V, I_C=100mA	h_{FE}	350	-	-	
at V_{CE}=2V, I_C=500mA	h_{FE}	300	-	-	-
at V_{CE}=2V, I_C=1A	h_{FE}	250	-	-	
at V_{CE}=2V, I_C=2A	h_{FE}	80	-	-	
Collector-Base Cutoff Current					
at V_{CB}=30V	I_{CBO}	-	-	100	nA
at V_{CB}=30V,T_{amb}=150 °C		-	-	50	µA
Emitter-Base Cutoff Current					
at V_{EB}=4V	I_{EBO}	-	-	100	nA
Collector-Emitter Saturation Voltage					
at I_C=100mA, I_B=1mA		-	-	70	
at I_C=500mA, I_B=50mA		-	-	100	
at I_C=750mA, I_B=15mA	$V_{CE(sat)}$	-	-	180	mV
at I_C=1A, I_B=50mA		-	-	180	
at I_C=2A, I_B=200mA		-	-	320	
Equivalent on-Resistance					
at I_C=500mA, I_B=50mA	$R_{CE(sat)}$	-	140	<200	mΩ
Base-Emitter Saturation Voltage					
at I_C=2A, I_B=200mA	$V_{BE(sat)}$	-	-	1.1	V
Base-Emitter Turn-on Voltage					
at V_{CE}=2V, I_C=100mA	$V_{BE(on)}$	-	-	0.75	V
Transition Frequency					
at V_{CE}=10V, I_C=100mA,f=100MHz	f_T	100	230	-	MHz
Collector Capacitance					
at V_{CB}=10V, f=1MHz	C_C	-	15	20	pF