

160V NPN SMALL SIGNAL TRANSISTOR

Features

- ✧ Epitaxial Planar Die Construction
- ✧ Totally Lead-Free & Fully RoHS compliant
- ✧ Halogen and Antimony Free
- ✧ NPN

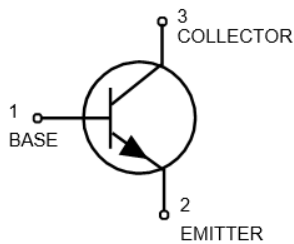
V_{CBO}	180V
V_{CEO}	160V
V_{EBO}	6.0V
I_c	600mA

Applications

- ✧ Medium Power Amplification and Switching

Mechanical Data

- ✧ Package : SOT-23



Circuit Diagram



SOT-23

Absolute Maximum Rating at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_c	600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	416	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~+150	$^{\circ}\text{C}$

Electrical Characteristics at $T_A = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

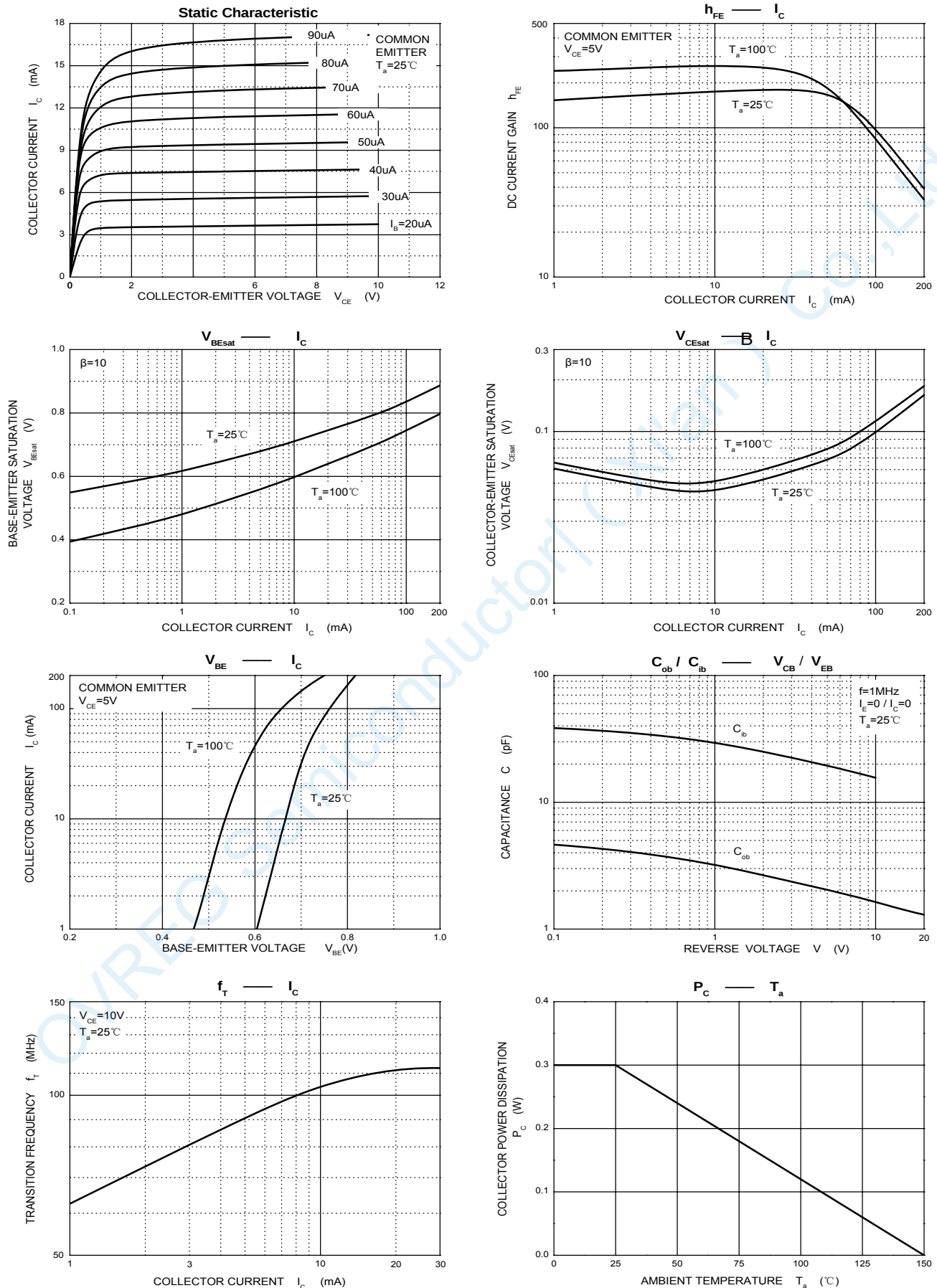
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	180			V	$I_C=100\mu\text{A}$, $I_E=0$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	160			V	$I_C=1\text{mA}$, $I_B=0$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	6			V	$I_E=10\mu\text{A}$, $I_C=0$
Collector cut-off current	I_{CBO}			0.05	μA	$V_{CB}=120\text{V}$, $I_E=0$
Emitter cut-off current	I_{EBO}			0.05	μA	$V_{EB}=4\text{V}$, $I_C=0$
DC current gain	h_{FE1}	80				$V_{CE}=5\text{V}$, $I_C=1\text{mA}$
	h_{FE2}	100		300		$V_{CE}=5\text{V}$, $I_C=10\text{mA}$
	h_{FE3}	50				$V_{CE}=5\text{V}$, $I_C=50\text{mA}$
Collector-emitter saturation voltage	$V_{CE(sat)}$			0.15	V	$I_C=10\text{mA}$, $I_B=1\text{mA}$
	$V_{CE(sat)}$			0.2	V	$I_C=50\text{mA}$, $I_B=5\text{mA}$
Base-emitter saturation voltage	$V_{BE(sat)}$			1	V	$I_C=10\text{mA}$, $I_B=1\text{mA}$
	$V_{BE(sat)}$			1	V	$I_C=50\text{mA}$, $I_B=5\text{mA}$
Transition frequency	f_T	100		300	MHz	$V_{CE}=10\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$
Collector output capacitance	C_{ob}			6	pF	$V_{CE}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$

*Pulse test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2.0\%$

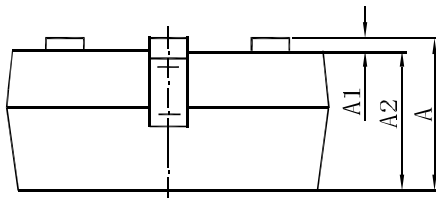
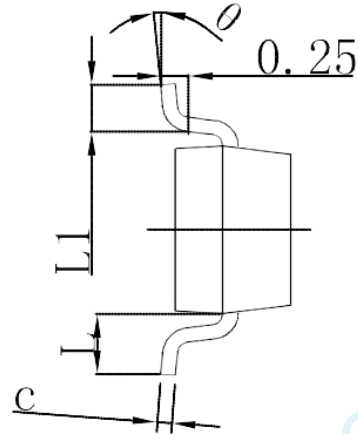
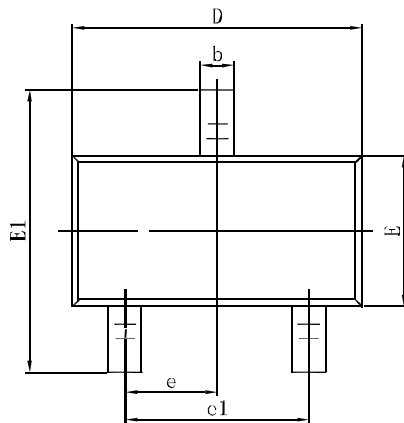
CLASSIFICATION OF h_{FE}

Rank	L	H
Range	100-200	200-300

Typical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

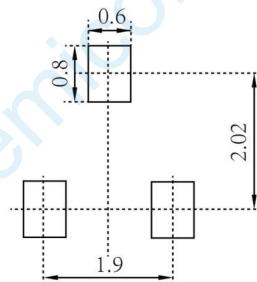


Package information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 TYP	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
θ	0°	8°

Recommend PCB Layout



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

Marking



X: Date Code

Ordering Information

Part number	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
OVS5551ST3R	GREEN	T/R	7 inch	3k/reel	10reel= 30k/box	4boxes=120k/carton