



# TSD1760

## Low Vce(sat) NPN Transistor

TO-252



Pin assignment:

1. Base
2. Collector
3. Emitter

$BV_{CEO} = 30V$

$I_C = 3A$

$V_{CE(SAT)}, = 0.25V(\text{typ.}) @I_C / I_B = 2A / 0.2A$

### Features

- ✧ Low  $V_{CE(SAT)}$ .
- ✧ Excellent DC current gain characteristics

### Structure

- ✧ Epitaxial planar type.
- ✧ Complementary to TSB1184

### Ordering Information

Part No.	Packing	Package
TSD1760CP	Tape & Reel	TO-252

### Absolute Maximum Rating (Ta = 25 °C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	40V	V
Collector-Emitter Voltage	$V_{CEO}$	30V	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	DC	3	A
	Pulse	7 (note 1)	
Collector Power Dissipation	$P_D$	1.0	W
Operating Junction Temperature	$T_J$	+150	°C
Operating Junction and Storage Temperature Range	$T_{STG}$	- 55 to +150	°C

Note: 1. Single pulse,  $P_w = 2mS$

### Electrical Characteristics

Ta = 25 °C unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
<b>Static</b>						
Collector-Base Voltage	$I_C = 50\mu A, I_E = 0$	$BV_{CBO}$	40	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 1mA, I_B = 0$	$BV_{CEO}$	30	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 50\mu A, I_C = 0$	$BV_{EBO}$	5	--	--	V
Collector Cutoff Current	$V_{CB} = 40V, I_E = 0$	$I_{CBO}$	--	--	1	$\mu A$
Emitter Cutoff Current	$V_{EB} = 4V, I_C = 0$	$I_{EBO}$	--	--	1	$\mu A$
Collector-Emitter Saturation Voltage	$I_C / I_B = 2.0A / 0.2A$	$V_{CE(SAT)}$	--	0.25	0.5	V
DC Current Transfer Ratio	$V_{CE} = 2V, I_C = 1A$	$h_{FE}$	120	--	560	
Transition Frequency	$V_{CE} = 5V, I_C = 100mA,$ $f = 100MHz$	$f_T$	--	90	--	MHz
Output Capacitance	$V_{CB} = 10V, f = 1MHz$	$C_{ob}$		45	--	pF

Note : pulse test: pulse width  $\leq 380\mu S$ , duty cycle  $\leq 2\%$

### Classification Of $h_{FE}$

Rank	Q	R	S
Range	120 - 270	180 - 390	270 - 560

# Electrical Characteristics Curve

Figure 1. Current Gain vs Collector Current

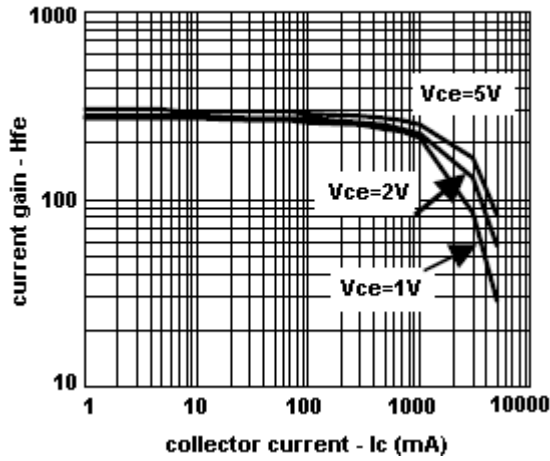


Figure 2. Saturation Voltage vs Collector Current

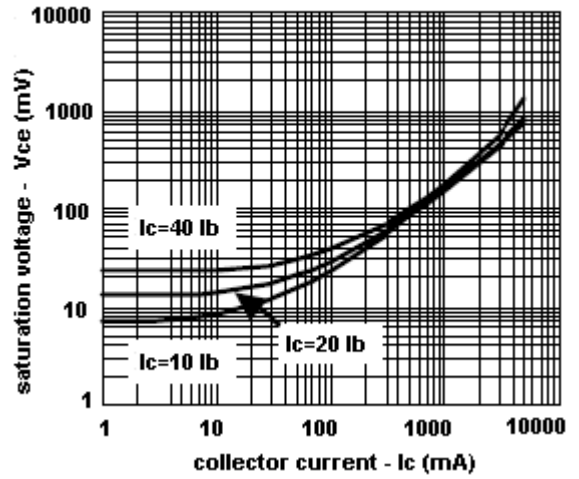


Figure 3. Saturation Voltage vs Collector Current

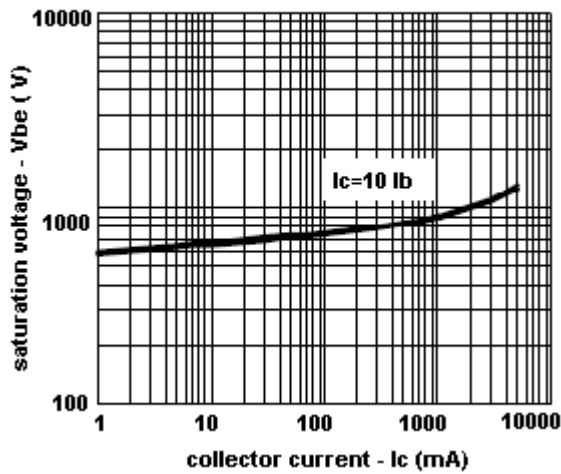
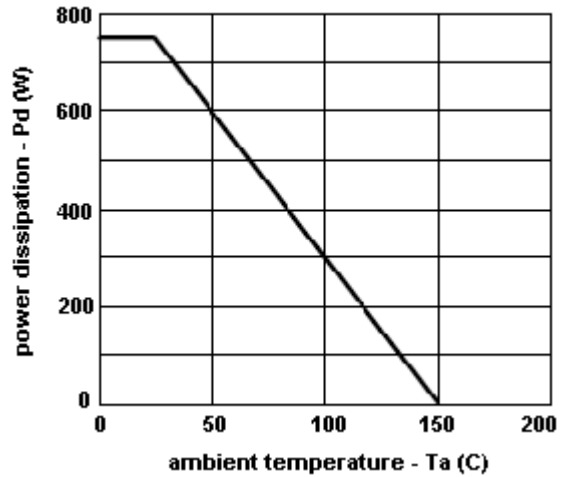
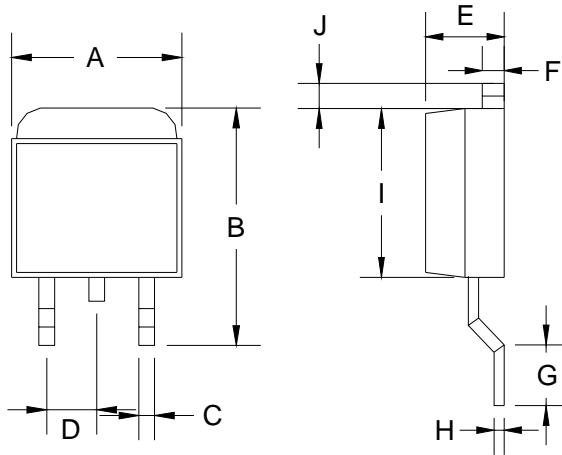


Figure 4. Power Derating Curves



## TO-252 Mechanical Drawing



DIM	TO-252 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.570	6.840	0.259	0.269
B	9.250	10.400	0.364	0.409
C	0.550	0.700	0.022	0.028
D	2.560	2.670	0.101	0.105
E	2.300	2.390	0.090	0.094
F	0.490	0.570	0.019	0.022
G	1.460	1.580	0.057	0.062
H	0.520	0.570	0.020	0.022
I	5.340	5.550	0.210	0.219
J	1.460	1.640	0.057	0.065