

Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CBO}	180V
BV_{CEO}	160V
I_C	1.5A
$V_{CE(SAT)}$	0.3V @ $I_C = 1A, I_B = 100mA$

Features

- Low $V_{CE(SAT)}$ 0.15 @ $I_C = 1A, I_B = 100mA$ (Typ.)
- High BV_{CEO}

Structure

- Epitaxial Planar Type
- NPN Silicon Transistor

Ordering Information

Part No.	Package	Packing
TSD1858CH C5G	TO-251	75pcs / Tube

Note: "G" denote for Halogen Free Product

Absolute Maximum Rating ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	160	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	DC	1.5	A
	Pulse	3 (note1)	
Power Dissipation @ $T_A = 25^\circ C$	P_D	1	W
Power Dissipation @ $T_C = 25^\circ C$	P_D	15	W
Thermal Resistance - Junction to Case	$R\theta_{JC}$	125	$^\circ C/W$
Thermal Resistance - Junction to Ambient	$R\theta_{JA}$	8.33	$^\circ C/W$
Operating Junction Temperature	T_J	+150	$^\circ C$
Operating Junction and Storage Temperature Range	T_{STG}	- 55 to +150	$^\circ C$

Note: 1. Single pulse, $P_w \leq 380\mu s$, Duty $\leq 2\%$

Electrical Specifications ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$I_C = 1mA, I_E = 0$	BV_{CBO}	180	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 10mA, I_B = 0$	BV_{CEO}	160	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 50\mu A, I_C = 0$	BV_{EBO}	5	--	--	V
Collector Cutoff Current	$V_{CB} = 160V, I_E = 0$	I_{CBO}	--	--	1	μA
Emitter Cutoff Current	$V_{EB} = 4V, I_C = 0$	I_{EBO}	--	--	1	μA
Collector-Emitter Saturation Voltage	$I_C = 1A, I_B = 100mA$	$V_{CE(SAT)}$	--	0.15	0.3	V
Base-Emitter Saturation Voltage	$V_{CE} = 5V, I_C = 5mA$	$V_{BE(ON)}$	--	--	0.8	V
DC Current Transfer Ratio	$V_{CE} = 5V, I_C = 200mA$	h_{FE1}	180	--	390	
	$V_{CE} = 5V, I_C = 500mA$	h_{FE2}	30	--	--	
Transition Frequency	$V_{CE} = 5V, I_E = 150mA, f = 100MHz$	f_T	--	200	--	MHz
Output Capacitance	$V_{CB} = 10V, f = 1MHz$	C_{ob}	--	13	--	pF

Note: Pulse test: pulse width $\leq 380\mu s$, Duty cycle $\leq 2\%$

Electrical Characteristics Curve ($T_A = 25^\circ\text{C}$, unless otherwise noted)

Figure 1. DC Current Gain

($V_{CE}=5\text{V}$, $T_A=25^\circ\text{C}$)

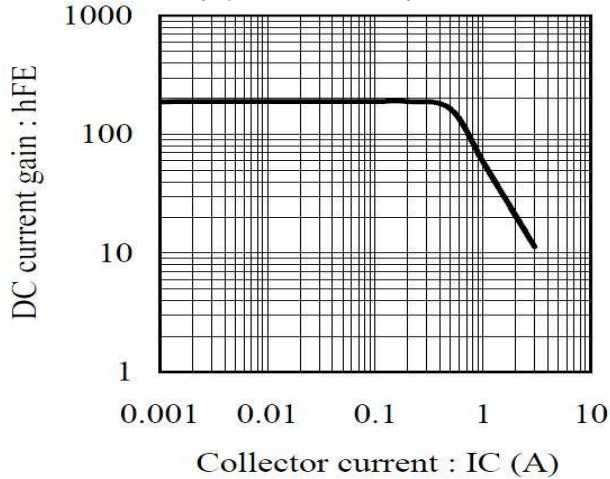


Figure 2. $V_{CE(sat)}$ vs. Collector Current

($I_C/I_B=10$, $T_A=25^\circ\text{C}$)

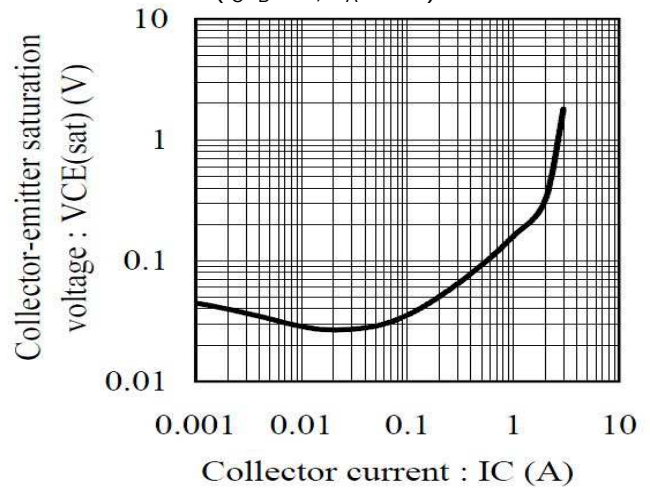


Figure 3. $V_{BE(sat)}$ vs. Collector Current

($I_C/I_B=10$, $T_A=25^\circ\text{C}$)

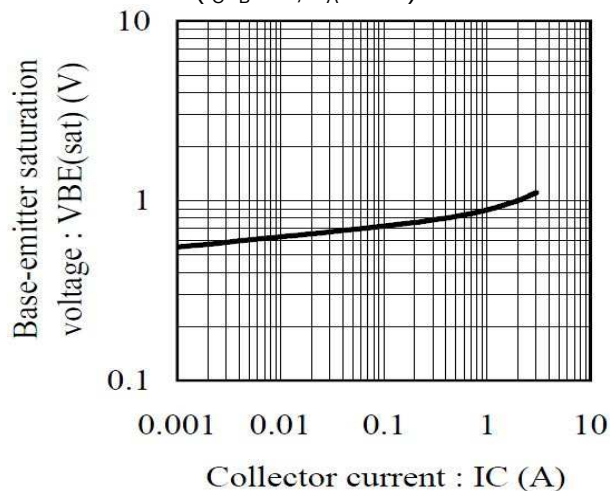


Figure 4. C_{ib} vs. V_{CE}

($f=1\text{MHz}$, $T_A=25^\circ\text{C}$)

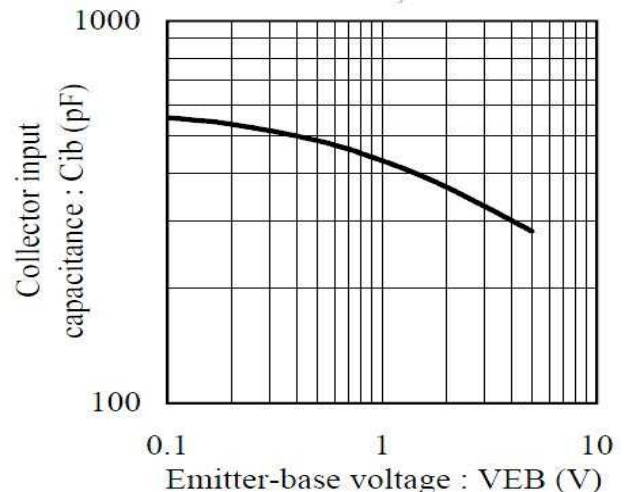


Figure 5. Frequency vs. Emitter Current

($V_{CE}=5\text{V}$, $T_A=25^\circ\text{C}$)

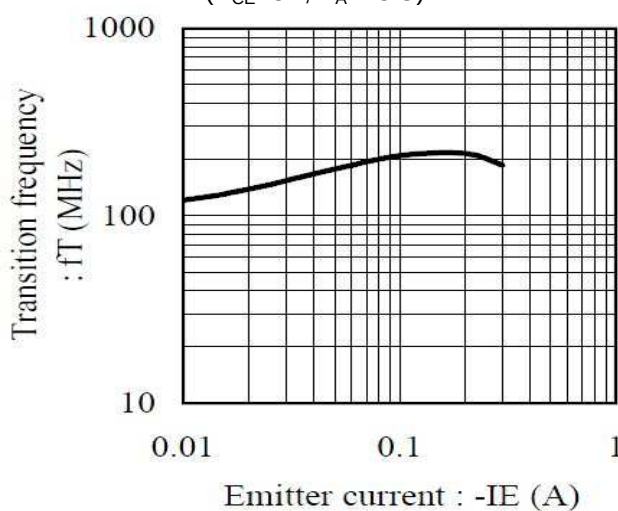
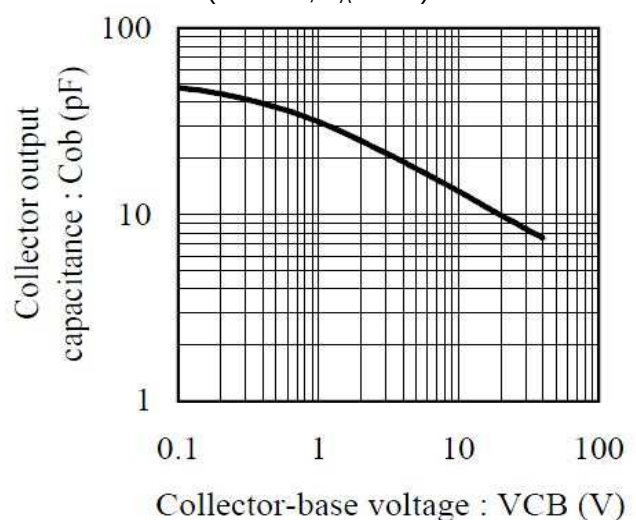
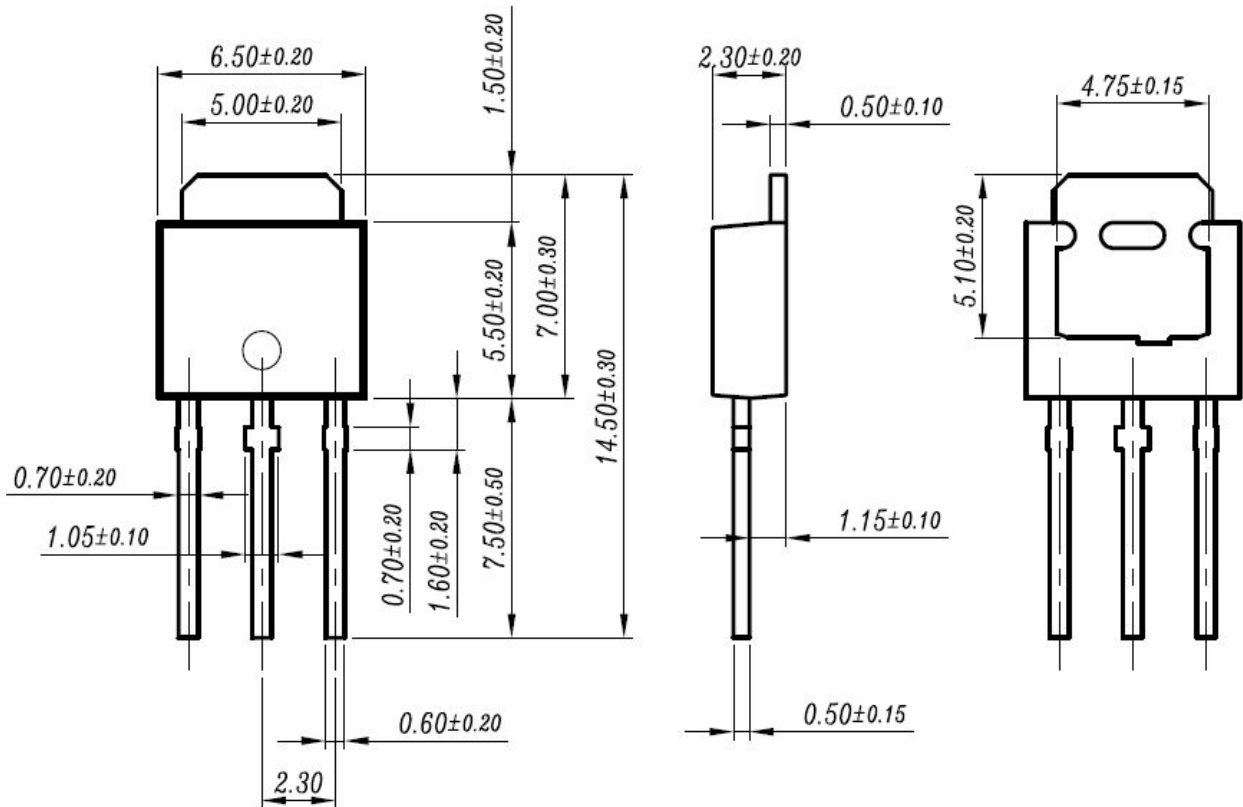


Figure 6. C_{ob} vs. V_{CB}

($f=1\text{MHz}$, $T_A=25^\circ\text{C}$)

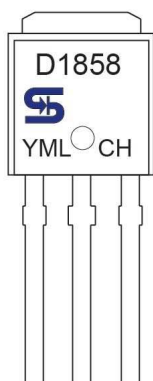


TO-251 Mechanical Drawing



Unit: Millimeters

Marking Diagram



- Y** = Year Code
- M** = Month Code for Halogen Free Product
(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apr, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
- L** = Lot Code

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