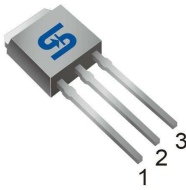


**TO-251
(IPAK)**



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 (Ta = 25°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°C	P _D	1	W
Power Dissipation @ T _C =25°C	P _D	15	W
Thermal Resistance - Junction to Case	R _{θJC}	125	°C/W
Thermal Resistance - Junction to Ambient	R _{θJA}	8.33	°C/W
Operating Junction Temperature	T _J	+150	°C
Operating Junction and Storage Temperature Range	T _{STG}	- 55 to +150	°C

Note: 1. Single pulse, Pw≤380us, Duty≤2%

Electrical Specifications (Ta = 25°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 = 50uA, I _C = 0	BV _{EBO}	5	--	--	V
Collector Cutoff Current	V _{CB} = 160V, I _E = 0	I _{CBO}	--	--	1	uA
Emitter Cutoff Current	V _{EB} = 4V, I _C = 0	I _{EBO}	--	--	1	uA
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	Cob	--	13	--	pF

Note: Pulse test: pulse width ≤380uS, Duty cycle≤2%

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

Figure 1. DC Current Gain

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

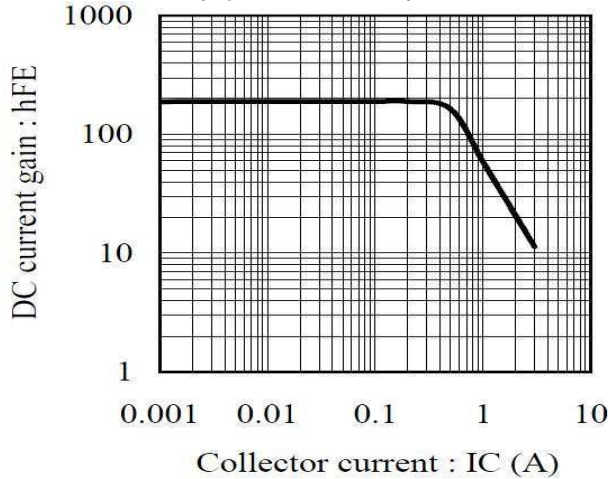


Figure 2. $V_{CE(sat)}$ vs. Collector Current

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

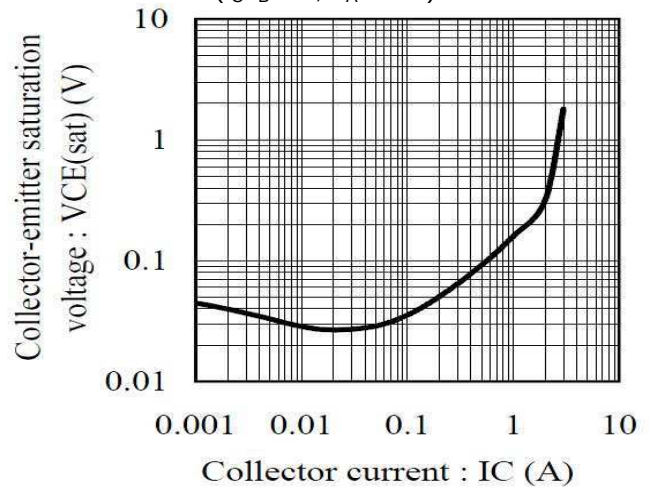


Figure 3. $V_{BE(sat)}$ vs. Collector Current

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

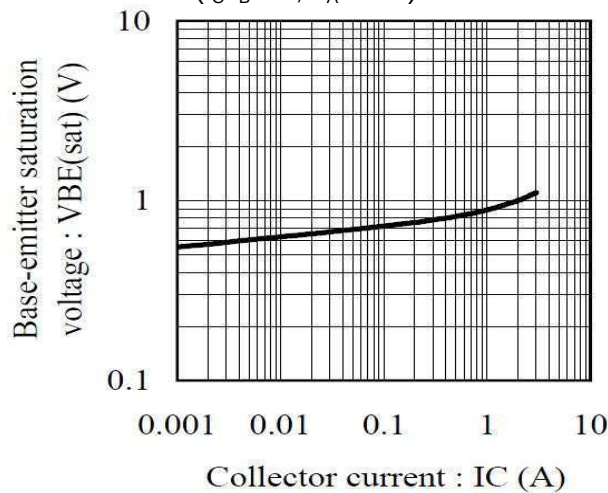


Figure 4. C_{ib} vs. V_{CE}

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

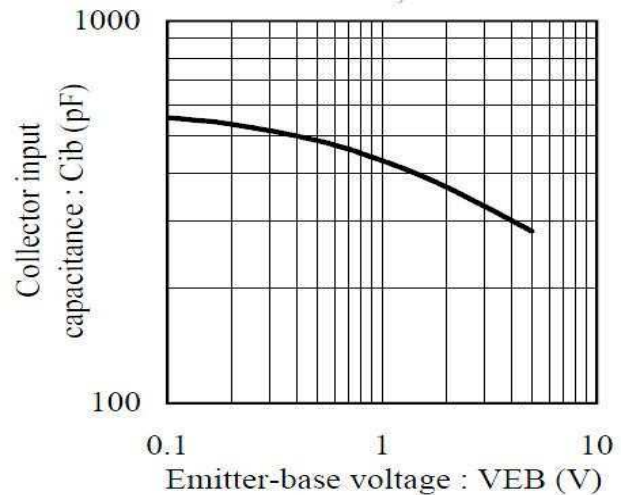


Figure 5. Frequency vs. Emitter Current

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

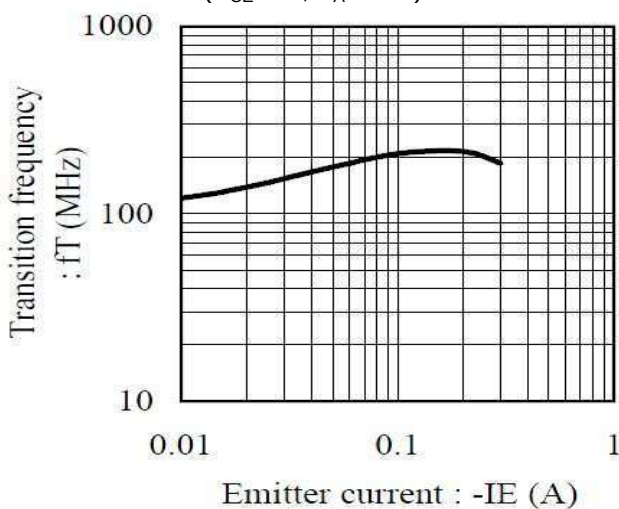
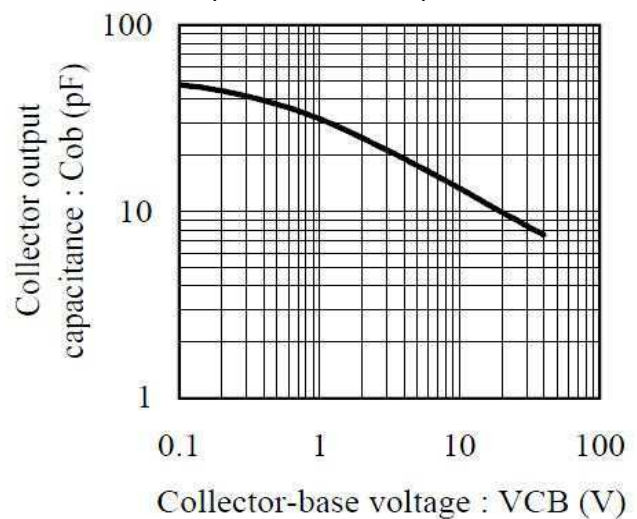
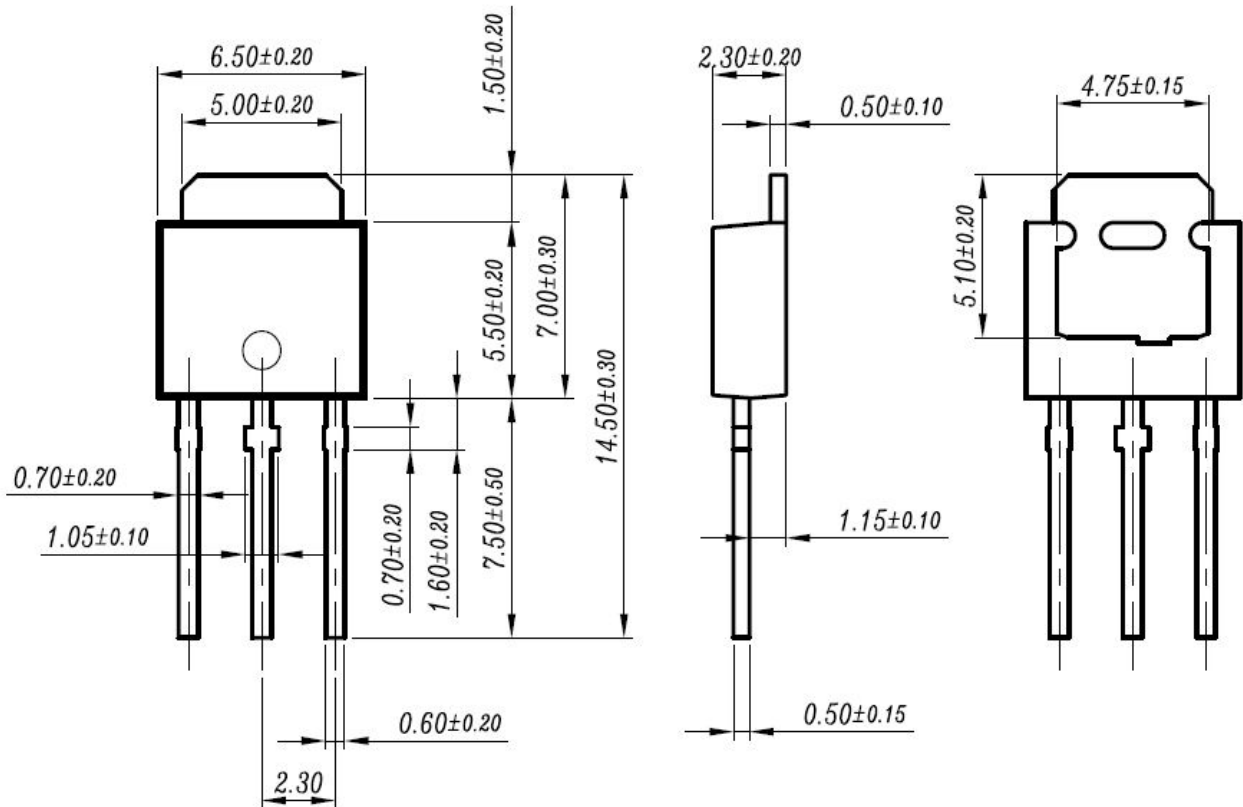


Figure 6. C_{ob} vs. V_{CB}

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

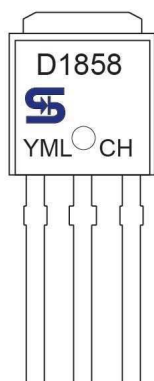


TO-251 Mechanical Drawing



Unit: Millimeters

Marking Diagram



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

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