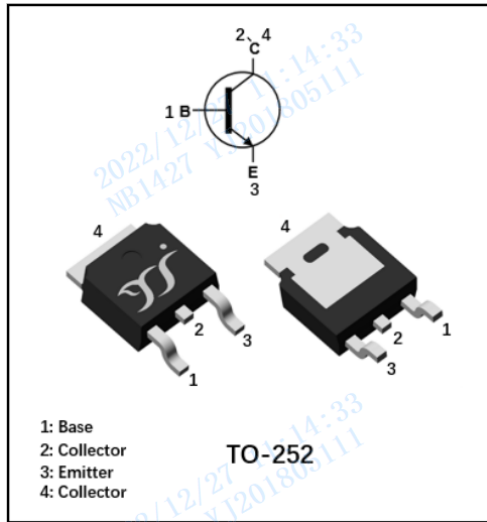


NPN Transistor



Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1

Applications

- Signal Amplification
- Switching Circuit

Mechanical Data

- Package: TO-252
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Value
Device marking code			2SD1758
Collector-base voltage	V_{CBO}	V	40
Collector-emitter voltage	V_{CEO}	V	32
Emitter-base voltage	V_{EBO}	V	5
Collector current	I_C	A	2
Power dissipation (*)	P_D	W	1.2
Thermal resistance, junction-to-ambient (*)	R_{thJA}	°C/W	105
Junction temperature	T_j	°C	-55 to +150
Storage temperature	T_{STG}	°C	-55 to +150

(*) Device mounted on FR-4 PCB 1.0*1.0*0.06 inch, mounting pad for collector 1 cm²



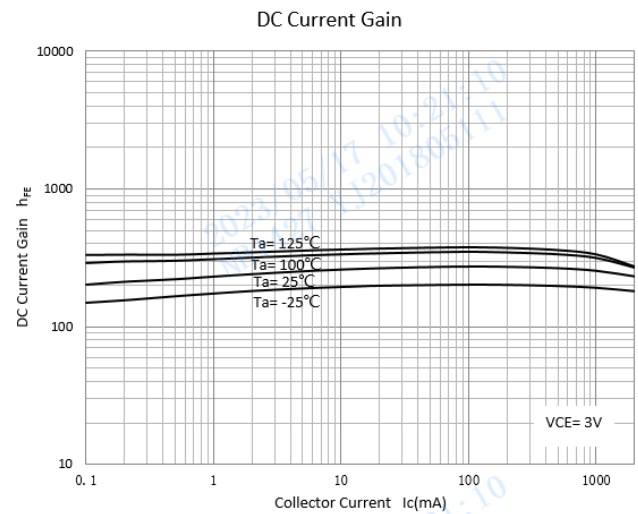
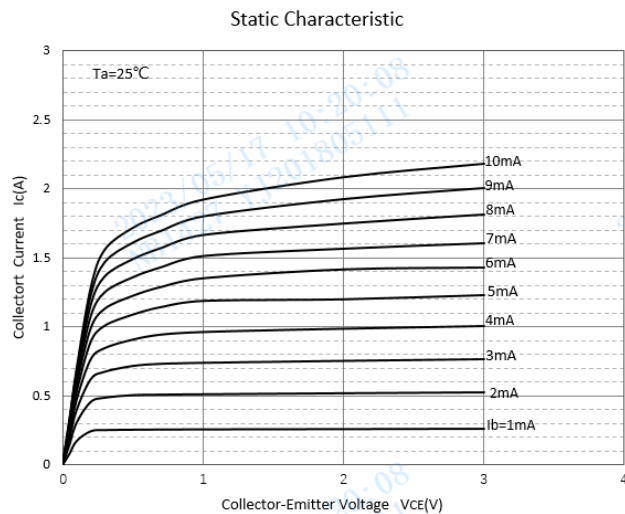
■ Electrical Characteristics (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C = 100\mu A, I_E = 0$	40		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C = 1mA, I_B = 0$	32		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E = 100\mu A, I_C = 0$	5		
Collector-base cut-off current	I_{CBO}	μA	$V_{CB} = 20V$			1
Emitter-base cut-off current	I_{EBO}	μA	$V_{EB} = 4V$			1
DC current gain	h_{FE}		$V_{CE} = 3V, I_C = 500mA$	180		390
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = 2A, I_B = 0.2A$			0.8
Collector-base output capacitance	C_{ob}	pF	$V_{CB} = 10V, I_E = 0A, f = 1MHz$		23	

■ Other Characteristics (Ta=25°C unless otherwise noted)

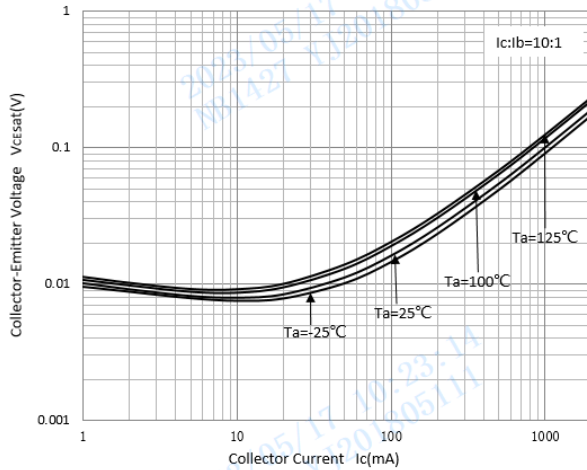
Item	Symbol	Unit	Conditions	Min	Typ	Max
Transition frequency	f_T	MHz	$V_{CE} = 5V, I_C = 0.1A, f = 10MHz$	50	-	-

■ Characteristics(Typical)

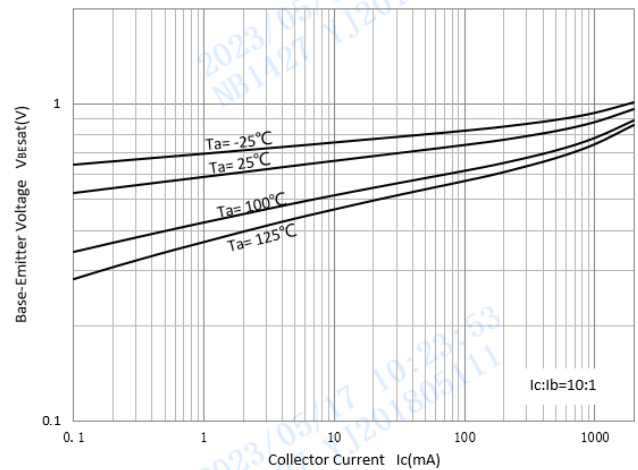




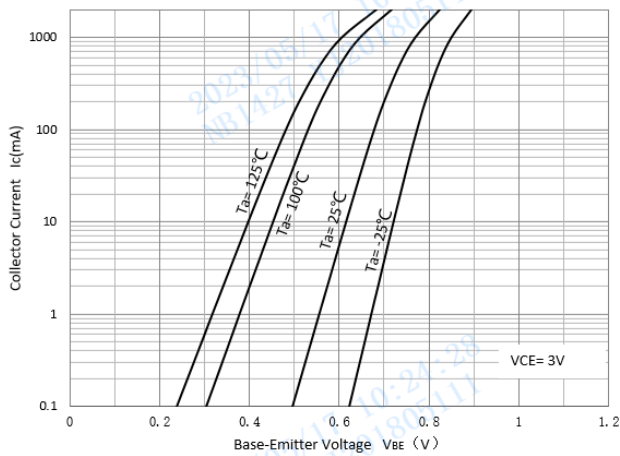
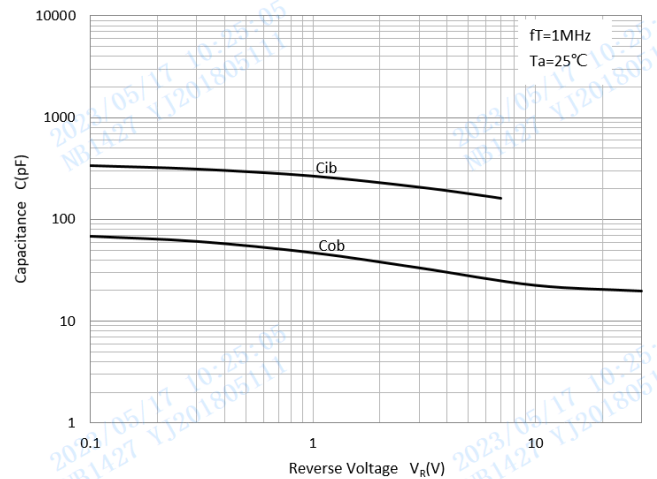
Collector-Emitter Saturation Voltage



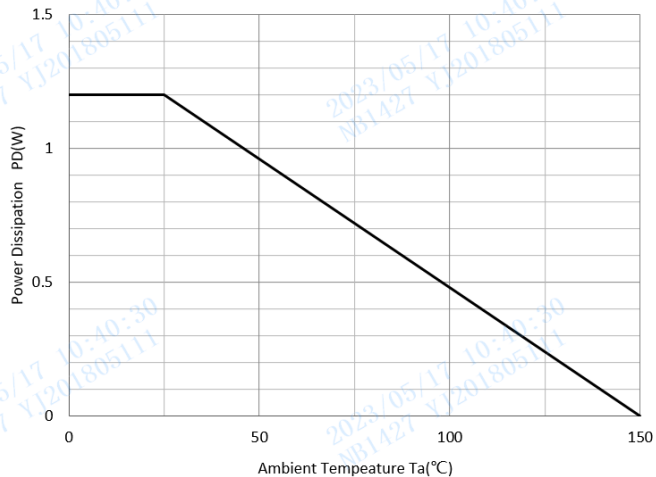
Base-Emitter Saturation Voltage



Base-Emitter On Voltage

 $C_{ob}/C_{ib}-V_{CB}/V_{EB}$ 

Power Derating Curve

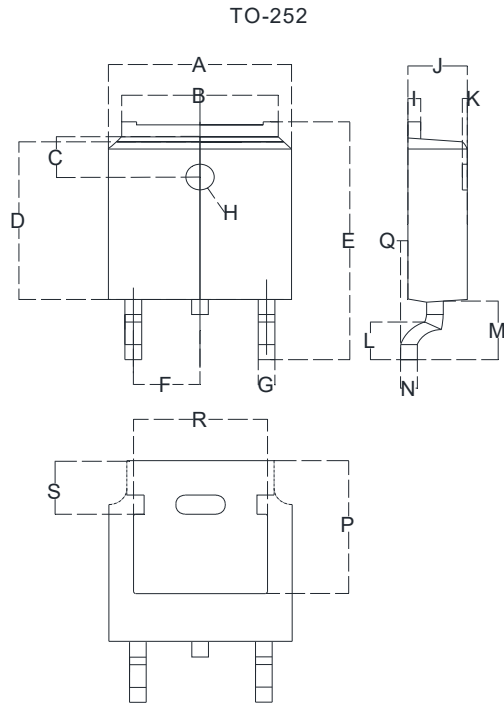




■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2SD1758	F1	2500	2500	25000	13"Reel

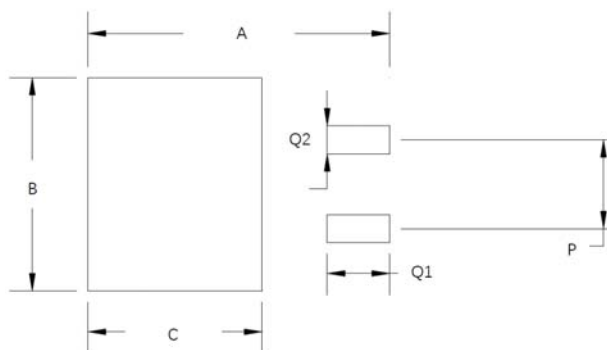
■ TO-252 Package information



Dimensions in millimeters

TO-252		
Dim	Min	Max
A	6.500	6.700
B	5.100	5.460
C	1.400	1.800
D	6.000	6.200
E	10.000	10.400
F	2.166	2.366
G	0.660	0.860
H	Φ 1.050	Φ 1.350
I	0.460	0.580
J	2.200	2.400
K	0	0.300
L	0.890	2.290
M	2.730	3.080
N	0.430	0.580
P	5.15	5.45
Q	0	0.2
R	4.50	5.10
S	1.60	2.40

■ Suggested Pad Layout



Dim	Millimeters
A	11.4
B	6.74
C	6.23
P	4.56
Q1	2.28
Q2	1.52



Disclaimer

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