

SOT-23 Plastic-Encapsulate Transistors

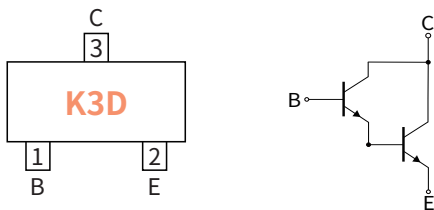
Features

- Darlington Amplifier

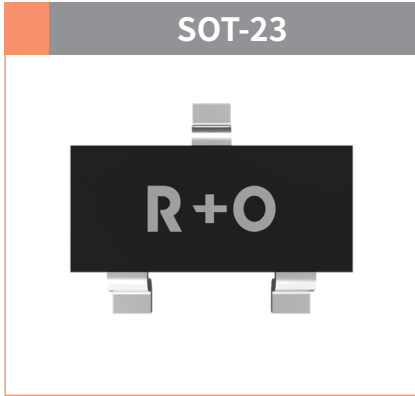
Mechanical Data

- Case: SOT-23
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Collector-Emitter Voltage
VCEO 30V
Collector Current
0.3 Ampere



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	15000	150000	7"

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V _{CBO}	V	30
Collector-Emitter Voltage	V _{CEO}		30
Emitter-Base Voltage	V _{EBO}		10
Collector Current	I _C	mA	300
Collector Power Dissipation	P _C	mW	300
Storage temperature	T _{stg}	°C	-55 ~+150
Junction temperature	T _j	°C	-55 ~+150
Typical Thermal Resistance	R _{θJA}	°C /W	417

Electrical Characteristics (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Typ	Max
Collector-Base Breakdown Voltage	V _{(BR)CBO}	V	I _C =100μA, I _E =0	30	—	—
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}		I _C =100μA, I _B =0	30	—	—
Emitter-Base Breakdown Voltage	V _{(BR)EBO}		I _E =100μA, I _C =0	10	—	—
Collector-Base cut-off current	I _{CBO}	μA	V _{CB} =30V, I _E =0	—	—	0.1
Emitter-Base cut-off current	I _{CEO}		V _{CE} =30V, I _B =0	—	—	0.1
Emitter-Base cut-off current	I _{EBO}		V _{EB} =10V, I _C =0	—	—	0.1
DC Current Gain	h _{FE}	—	V _{CE} =5.0V, I _C =10mA	10000	—	—
			V _{CE} =5.0V, I _C =100mA	20000	—	—

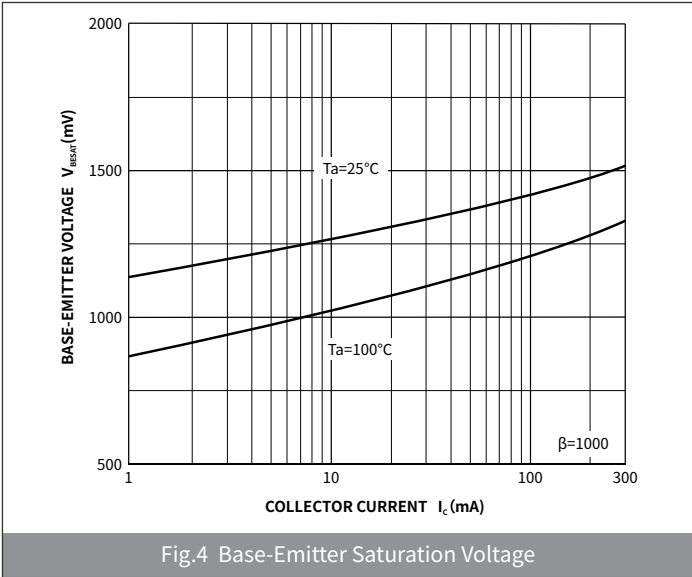
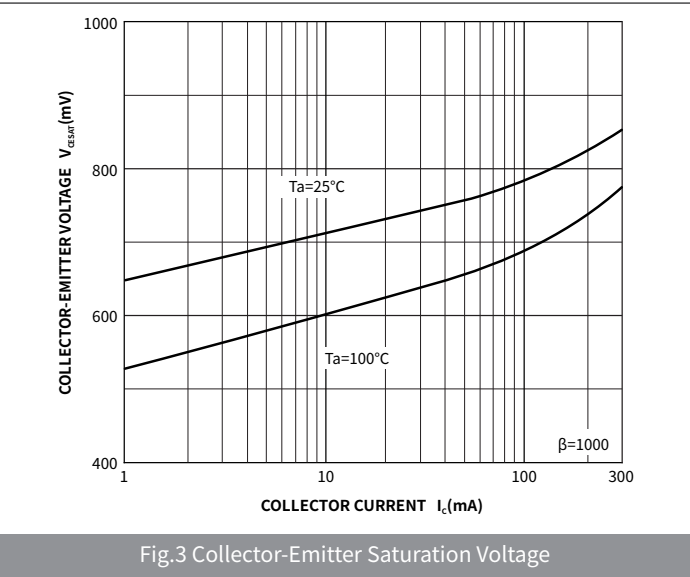
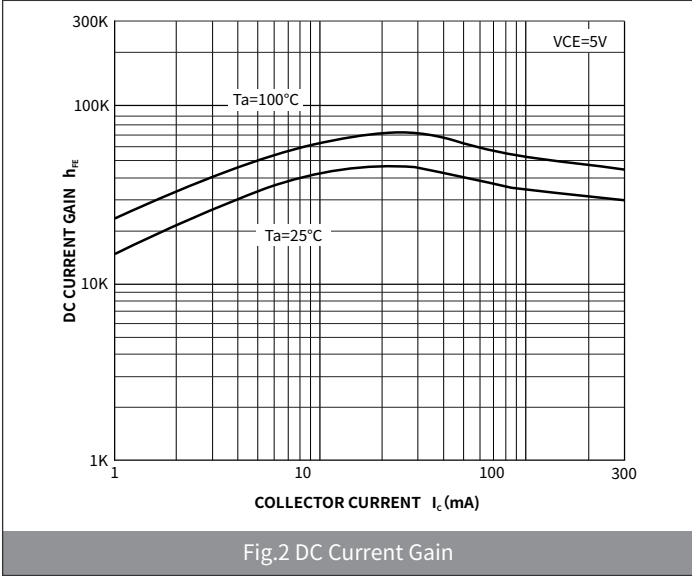
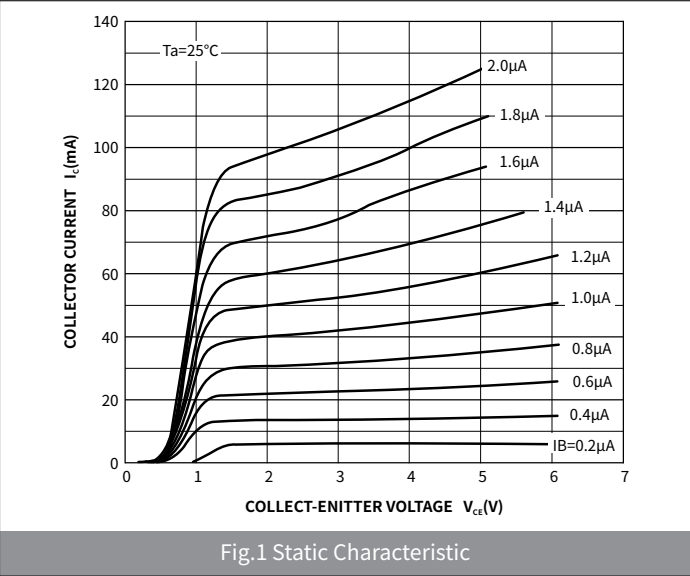
Electrical Characteristics (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Typ	Max
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=100mA, I_B=0.1mA$	—	—	1.5
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V		—	—	2
Base-Emitter On Voltage	$V_{BE(ON)}$	V	$V_{CE}=5.0V, I_C=100mA$	—	—	2
Output Capacitance	C_{ob}	pF	$V_{CB}=10V, I_E=0, f=1MHz$	—	—	12

Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	$I_C=10mA, V_{CE}=5V$	MHz	125	—	—

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

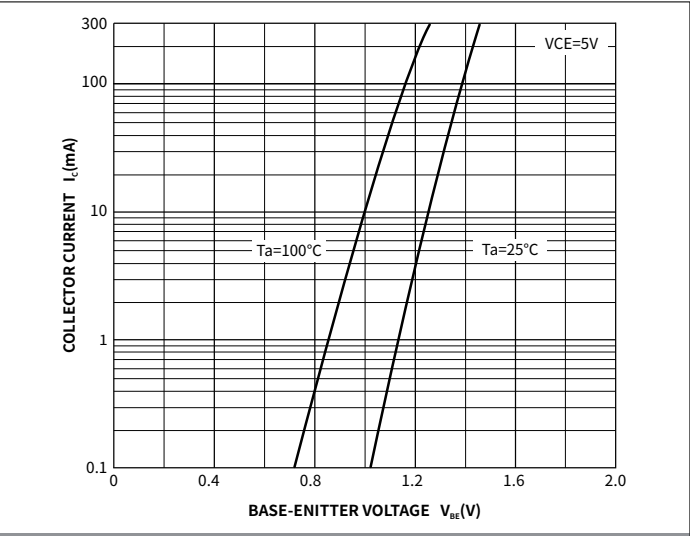


Fig.5 Base-Emitter On Voltage

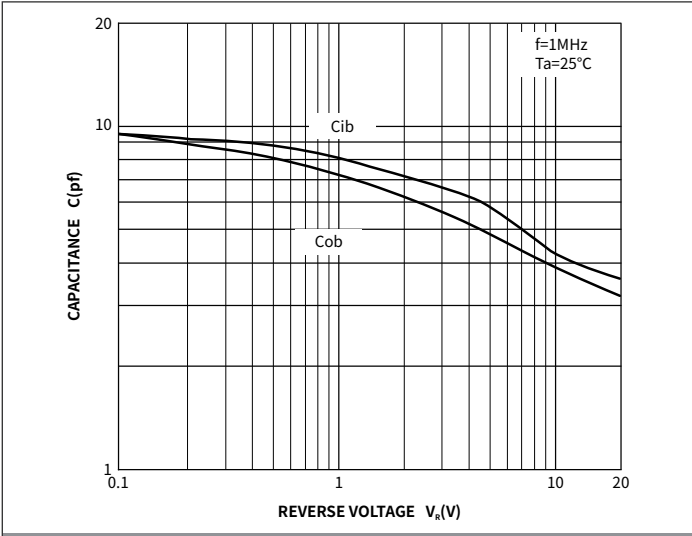
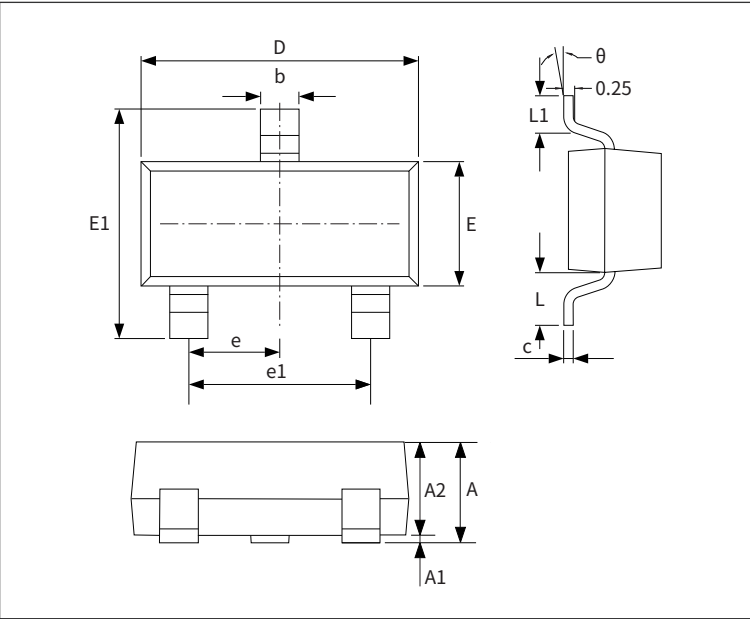


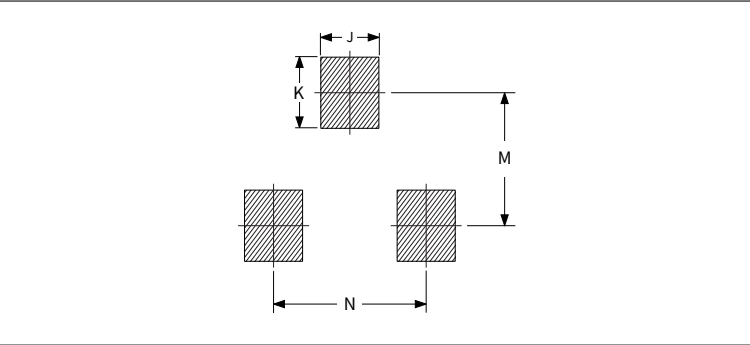
Fig.6 Cob/Cib- $V_{cb}V_{eb}$

● Package Outline Dimensions (SOT-23)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

● Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077