

SOT-23 Plastic-Encapsulate Transistors

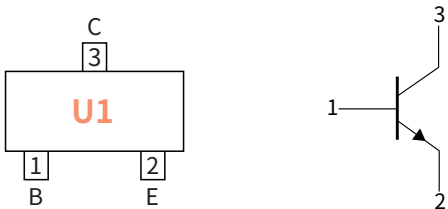
Features

- Power dissipation of 225mW
- High stability and high reliability

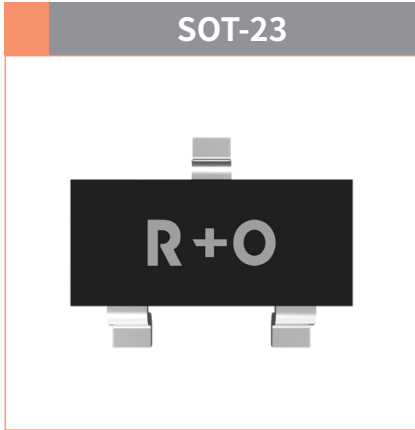
Mechanical Data

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

Function Diagram



Collector-Emitter Voltage
V_{CEO} 45V
Collector Current
0.5 Ampere



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	45000	180000	7"

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

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V _{CBO}	V	50
Collector-Emitter Voltage	V _{CEO}		45
Emitter-Base Voltage	V _{EBO}		5
Collector Current	I _C	A	0.5
Collector Power Dissipation	P _C	mW	225
Storage temperature	T _{stg}	°C	-55 ~+150
Junction temperature	T _j	°C	-55 ~+150
Typical Thermal Resistance	R _{θJA}	°C /W	556

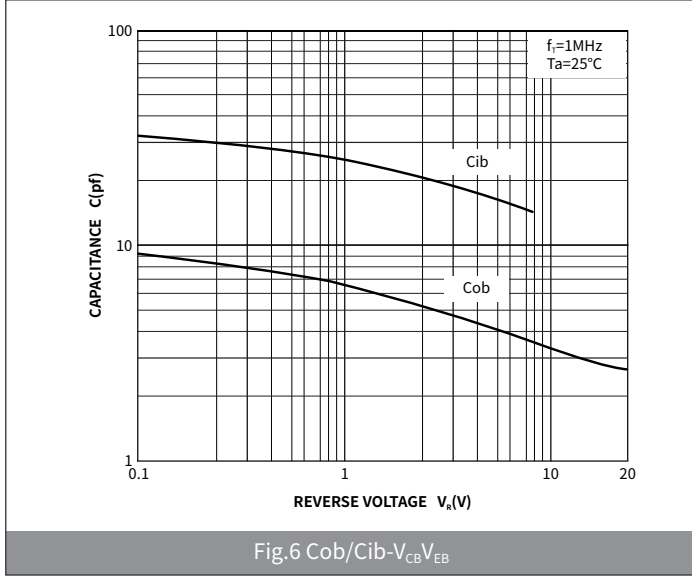
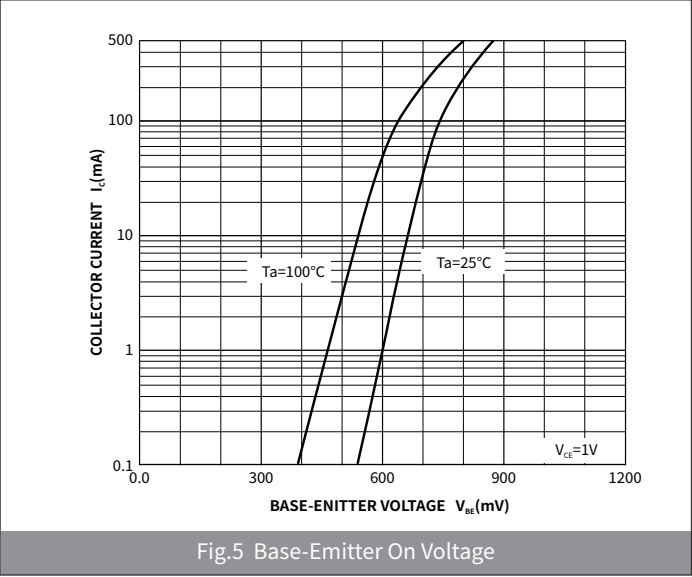
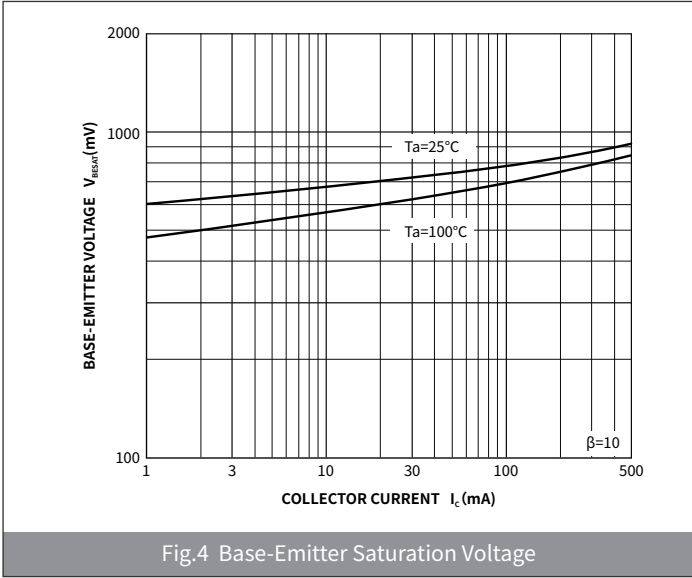
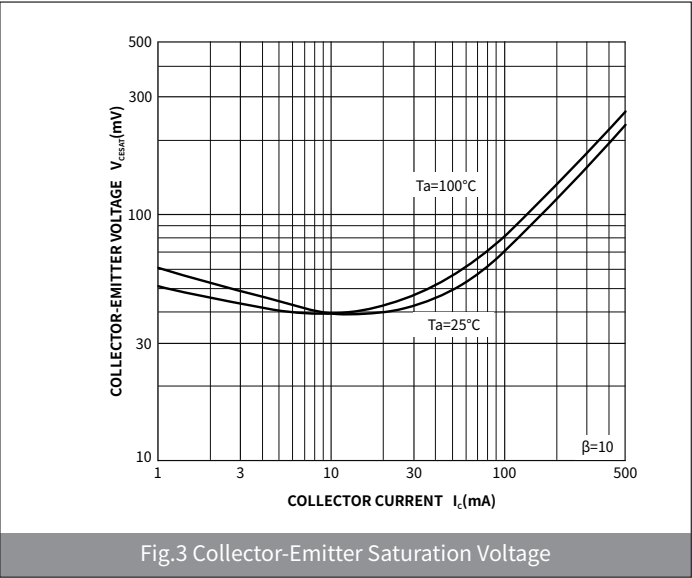
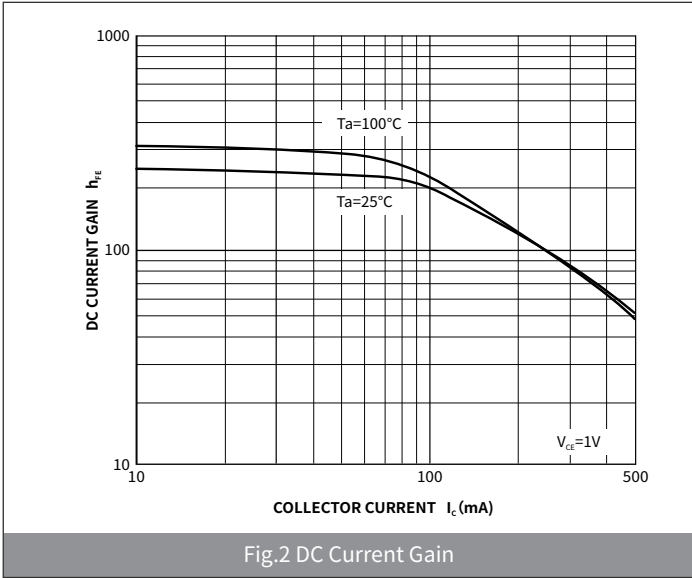
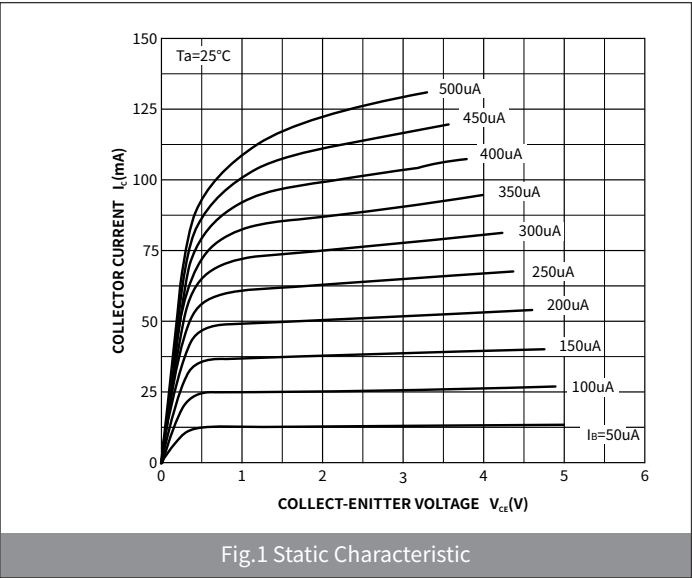
● **Electrical Characteristics** (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Typ	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=100\mu A, I_E=0$	50	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=10mA, I_B=0$	45	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=100\mu A, I_C=0$	5	—	—
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB}=30V, I_E=0$	—	—	100
Collector-Emitter cut-off current	I_{CEO}		$V_{CE}=20V, I_B=0$	—	—	100
Emitter-Base cut-off current	I_{EBO}	μA	$V_{EB}=5.0V, I_C=0$	—	—	10
DC Current Gain	$h_{FE(1)}$	—	$I_C=100mA, V_{CE}=1V$	100	—	600
	$h_{FE(2)}$	—	$I_C=300mA, V_{CE}=1V$	70	—	—
	$h_{FE(3)}$	—	$I_C=500mA, V_{CE}=1V$	40	—	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=500mA, I_B=50mA$	—	—	0.62
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C=500mA, I_B=50mA$	—	—	1.2
Base-Emitter On Voltage	$V_{BE(on)}$	V	$V_{CE}=1V, I_C=500mA$	—	—	1.2
Output Capacitance	C_{ob}	pF	$V_{CB}=10V, I_E=0, f=1MHz$	—	10	—

● **Small-signal Characteristics**

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	$I_C=10mA, V_{CE}=2V$	MHz	100	—	—

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



● 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