

SOT-523 Plastic-Encapsulate Transistors

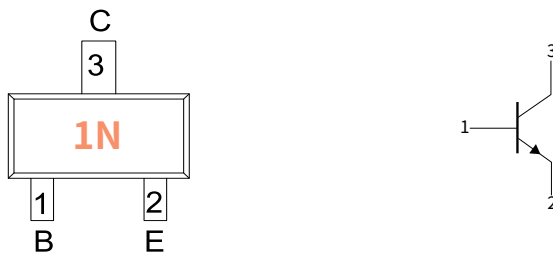
Features

- Complimentary to MMBT3906T
- Power dissipation of 150mW

Mechanical Data

- Case: SOT-523
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Function Diagram



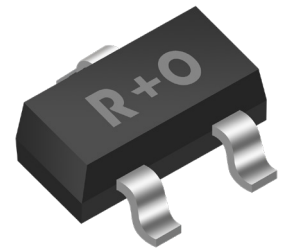
Collector-Emitter Voltage

V_{CEO} 40V

Collector Current

0.2 Ampere

SOT-523



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-523	R1	0.0025	3000	15000	150000	7"

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

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V _{CBO}	V	60
Collector-Emitter Voltage	V _{CEO}		40
Emitter-Base Voltage	V _{EBO}		6
Collector Current	I _C	A	0.2
Collector Power Dissipation	P _C	mW	150
Storage temperature	T _{stg}	°C	-55 ~+150
Junction temperature	T _j	°C	-55 ~+150
Thermal Resistance From Junction To Ambient	R _{θJA}	°C /W	833

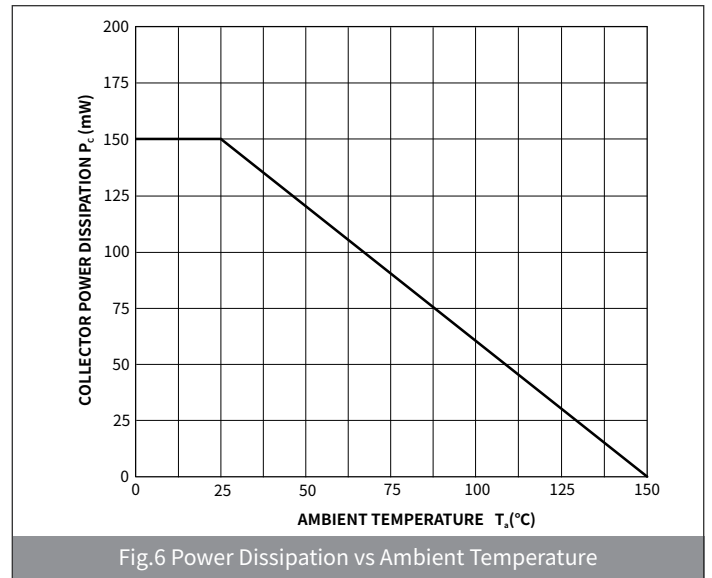
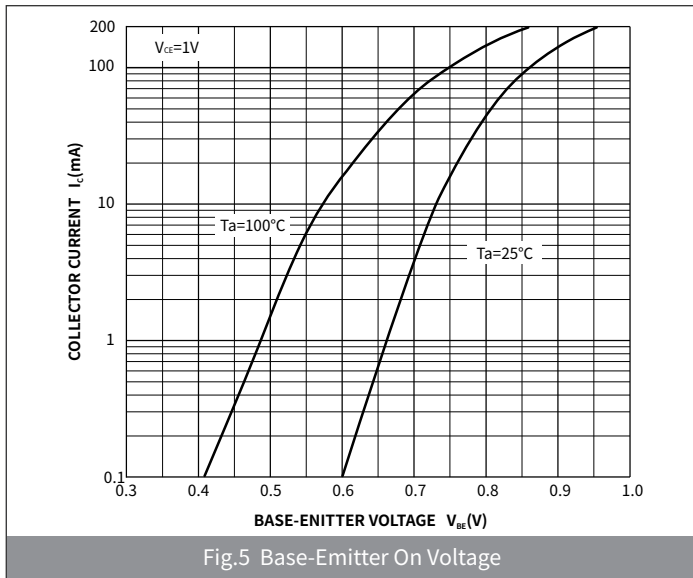
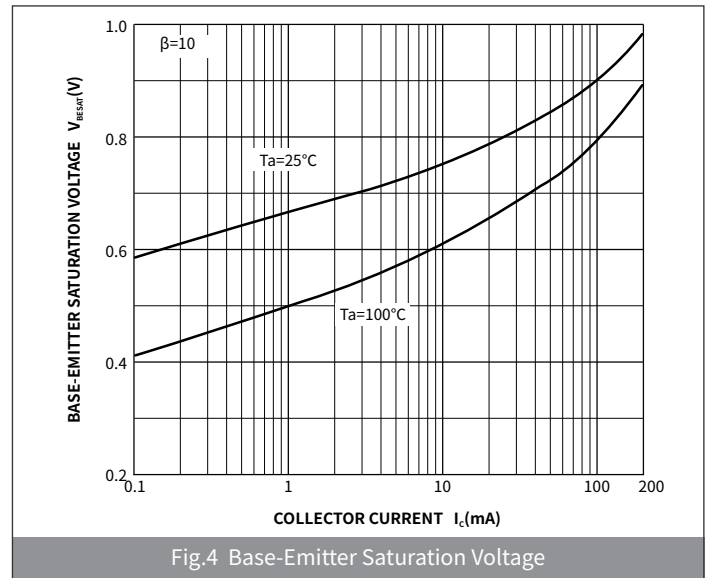
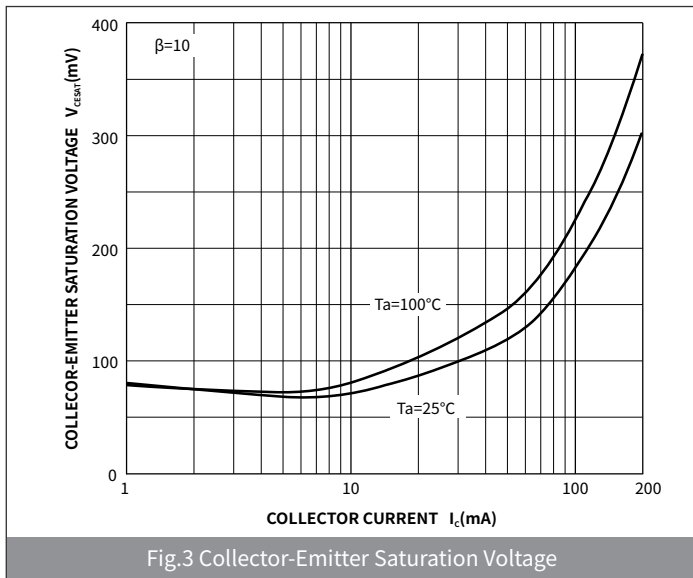
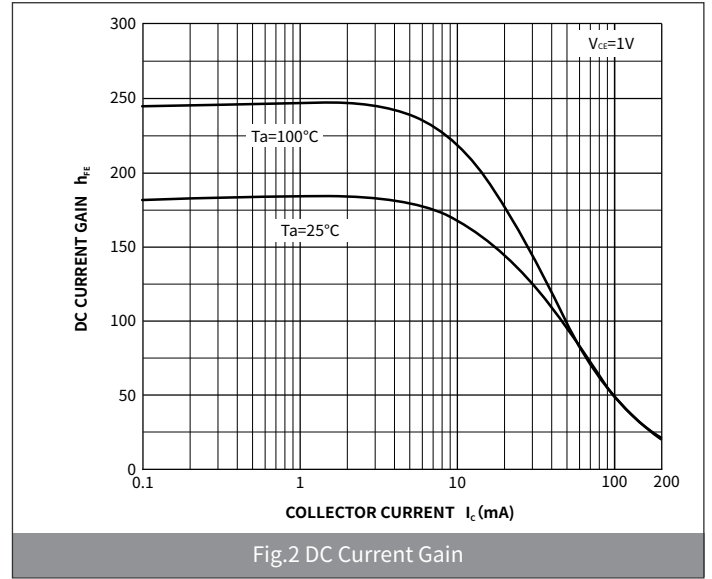
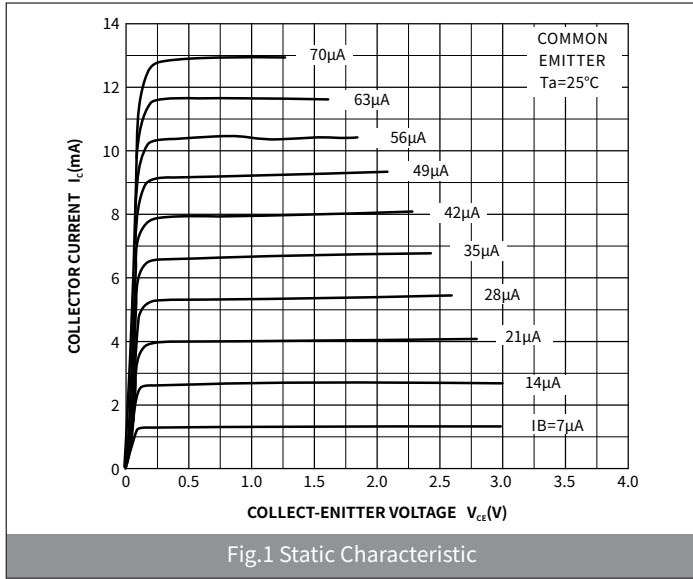
● **Electrical Characteristics** (Ta=25°C Unless otherwise noted)

PARAMETER	SYMBOL	UNIT	Condition	Min	Type	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=10\mu A, I_E=0$	60	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=1mA, I_B=0$	40	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=10\mu A, I_C=0$	6	—	—
Collector cut-off current	I_{CEX}	nA	$V_{CE}=30V, V_{EB(off)}=3.0V$	—	—	50
Emitter-Base cut-off current	I_{EBO}		$V_{EB}=5.0V, I_C=0$	—	—	100
DC Current Gain	$h_{FE(1)}$	—	$I_C=1mA, V_{CE}=1.0V$	70	—	—
	$h_{FE(2)}$		$I_C=10mA, V_{CE}=1.0V$	100	—	300
	$h_{FE(3)}$		$I_C=50mA, V_{CE}=1.0V$	60	—	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=10mA, I_B=1mA$	—	—	0.2
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		$I_C=50mA, I_B=5mA$	—	—	0.3
			$I_C=10mA, I_B=1mA$	0.65	—	0.85
			$I_C=50mA, I_B=5mA$	—	—	0.95
		Collector output capacitance	C_{ob}	pF	$V_{CB}=5.0V, I_E=0, f=1MHz$	—
Base input capacitance	C_{ib}	pF	$V_{EB}=0.5V, I_C=0, f=1MHz$	—	—	8
Delay time	t_d	ns	$V_{CC}=3.0V, V_{BE(off)}=-0.5V, I_C=10mA, I_{B1}=1mA$	—	—	35
Rise time	t_r	ns	$V_{CC}=3.0V, V_{BE(off)}=-0.5V, I_C=10mA, I_{B1}=1mA$	—	—	35
Storage time	t_s	ns	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1mA$	—	—	200
Fall time	t_f	ns	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1mA$	—	—	50

● **Small-signal Characteristics**

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	$I_C=10mA, V_{CE}=20V, f=100MHz$	MHz	300	—	—

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



● Package Outline Dimensions (SOT-523)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.65	0.85	0.026	0.033
A1	0.40	0.60	0.016	0.024
B	0.25	0.35	0.010	0.014
b	0.15	0.25	0.006	0.010
C	0.05	0.15	0.002	0.006
D	0.70	0.90	0.028	0.035
D1	1.50	1.70	0.059	0.067
E	1.5	1.7	0.059	0.067
e	0.95	1.05	0.037	0.041
H	-	0.10	-	0.004
L	0.17	-	0.007	-

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.70	0.020	0.028
B	0.60	0.80	0.024	0.031
C	0.90	1.10	0.035	0.043
D	1.20	1.40	0.047	0.055