

SOT-363 Plastic-Encapsulate Transistors

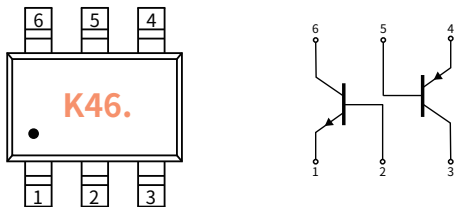
Features

- Power dissipation of 200mW
- Ideal for low power amplification and switching
- Dual Transistors (NPN+PNP)

Mechanical Data

- Case: SOT-363
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} 40/-40V
Collector Current
0.2/-0.2 Ampere



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

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V _{CBO}	V	-40
Collector-Emitter Voltage	V _{CEO}		-40
Emitter-Base Voltage	V _{EBO}		-5.0
Collector Current	I _C	A	-0.2
Collector Power Dissipation	P _C	W	0.2
Storage temperature	T _{stg}	°C	-55 ~+150
Junction temperature	T _j	°C	150
Typical Thermal Resistance ⁽¹⁾	R _{θJA}	°C /W	625

PNP Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f _T	I _C = -10mA, V _{CE} = -20V ,f=100MHz	MHz	250	—	—

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

PARAMETER	SYMBOL	UNIT	Condition	Min	Typ	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=-10\mu A, I_E=0$	-40	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=-1mA, I_B=0$	-40	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=-10\mu A, I_C=0$	-5.0	—	—
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB}=-30V, I_E=0$	—	—	-50
Emitter-Base cut-off current	I_{EBO}		$V_{EB}=-5.0V, I_C=0$	—	—	-50
DC Current Gain	$h_{FE(1)}$	—	$I_C=-0.1mA, V_{CE}=-1V$	60	—	—
	$h_{FE(2)}$	—	$I_C=-1mA, V_{CE}=-1V$	80	—	—
	$h_{FE(3)}$	—	$I_C=-10mA, V_{CE}=-1V$	100	—	300
	$h_{FE(4)}$	—	$I_C=-50mA, V_{CE}=-1V$	60	—	—
	$h_{FE(5)}$	—	$I_C=-100mA, V_{CE}=-1V$	30	—	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=-10mA, I_B=-1mA$	—	—	-0.25
			$I_C=-50mA, I_B=-5mA$	—		-0.40
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C=-10mA, I_B=-1mA$	-0.65	—	-0.85
			$I_C=-50mA, I_B=-5mA$	—		-0.95
Delay time	T_d	ns	$V_{CC}=-3V, V_{BE(off)}=-0.5V, I_C=-10mA, I_{B1}=-1mA$	—	—	35
Rise time	T_r			—	—	35
Storage time	T_s		$V_{CC}=-3V, I_C=-10mA, I_{B1}=-I_{B2}=-1mA$	—	—	225
Fall time	T_f			—	—	75
Collector output capacitance	C_{ob}	pF	$V_{CB}=-5V, I_E=0, f=1MHz$	—	—	4.5
Noise figure	NF	dB	$V_{CE}=-3V, I_C=-0.1mA, f=1kHz, R_g=1K\Omega, \Delta f=200MHz$	—	—	4.0

● NPN 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}		5
Collector Current	I_C	A	0.2
Collector Power Dissipation	P_C	W	0.2
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	150
Typical Thermal Resistance	$R_{\theta JA}$	°C /W	625

● NPN Small-signal Characteristics

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

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

PARAMETER	SYMBOL	UNIT	Condition	Min	Typ	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=10\mu\text{A}, I_E=0$	60	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=1\text{mA}, I_B=0$	40	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=10\mu\text{A}, I_C=0$	5.0	—	—
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB}=30\text{V}, I_E=0$	—	—	50
Emitter-Base cut-off current	I_{EBO}		$V_{EB}=5.0\text{V}, I_C=0$	—	—	50
DC Current Gain	$h_{FE(1)}$	—	$I_C=0.1\text{mA}, V_{CE}=1\text{V}$	40	—	—
	$h_{FE(2)}$	—	$I_C=1\text{mA}, V_{CE}=1\text{V}$	70	—	—
	$h_{FE(3)}$	—	$I_C=10\text{mA}, V_{CE}=1\text{V}$	100	—	300
	$h_{FE(4)}$	—	$I_C=50\text{mA}, V_{CE}=1\text{V}$	60	—	—
	$h_{FE(5)}$	—	$I_C=100\text{mA}, V_{CE}=1\text{V}$	30	—	—
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=10\text{mA}, I_B=1\text{mA}$	—	—	0.2
			$I_C=50\text{mA}, I_B=5\text{mA}$			0.3
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C=10\text{mA}, I_B=1\text{mA}$	0.65	—	0.85
			$I_C=50\text{mA}, I_B=5\text{mA}$	—		0.95
Delay time	T_d	ns	$V_{CC}=3\text{V}, I_C=10\text{mA}, I_{B1}=1\text{mA}, V_{BE(off)}=0.5\text{V}$	—	—	35
Rise time	T_r			—	—	35
Storage time	T_s		$V_{CC}=3\text{V}, I_C=10\text{mA}, I_{B1}=I_{B2}=1\text{mA}$	—	—	200
Fall time	T_f			—	—	50
Collector output capacitance	C_{ob}	pF	$V_{CB}=5\text{V}, I_E=0, f=1\text{MHz}$	—	—	4.0
Noise figure	NF	dB	$V_{CE}=5\text{V}, I_C=0.1\text{mA}, f=1\text{kHz}, R_g=1\text{K}\Omega, \Delta f=200\text{MHz}$	—	—	5.0

Note :
(1)Pulse test: Pulse width ≤ 300us, duty cycle ≤ 2%.

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

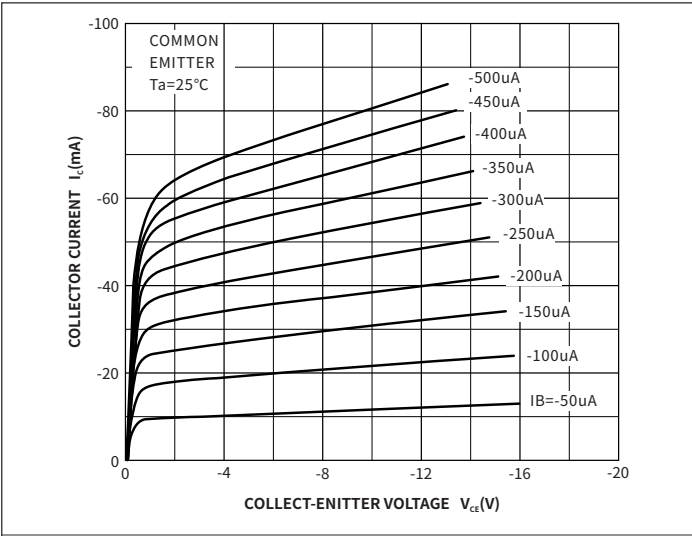


Fig.1 Static Characteristic

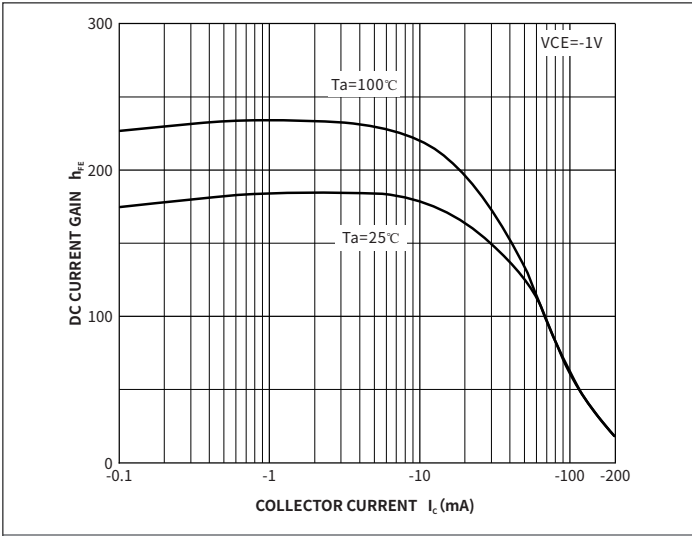


Fig.1 Static Characteristic

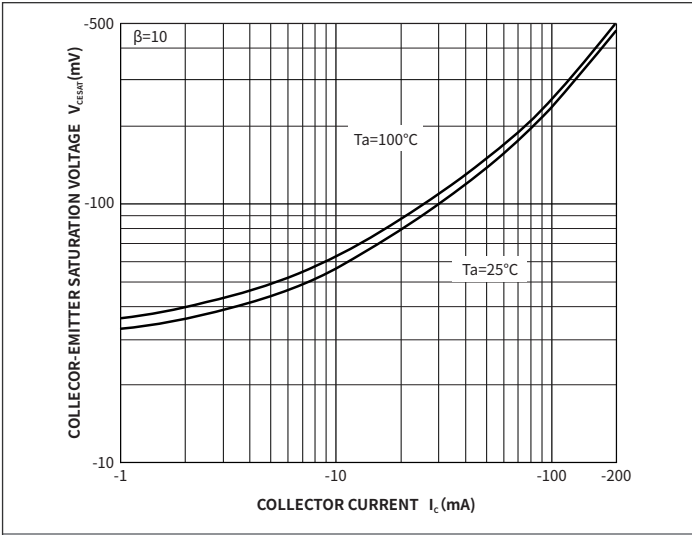


Fig.3 Collector-Emitter Saturation Voltage

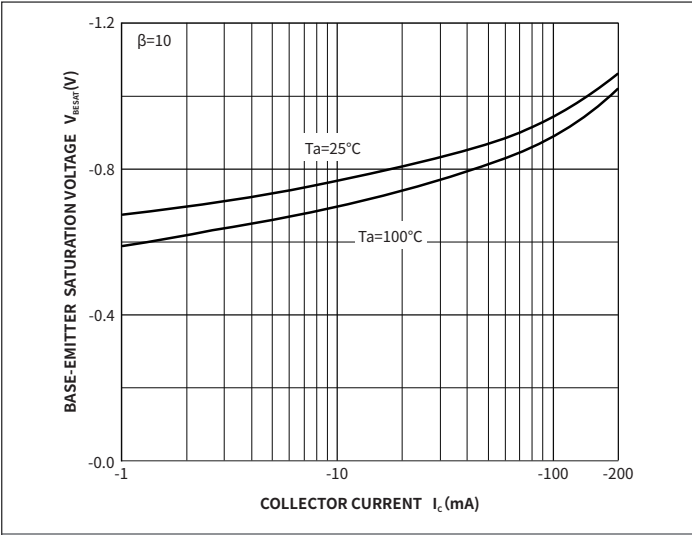


Fig.4 Base-Emitter Saturation Voltage

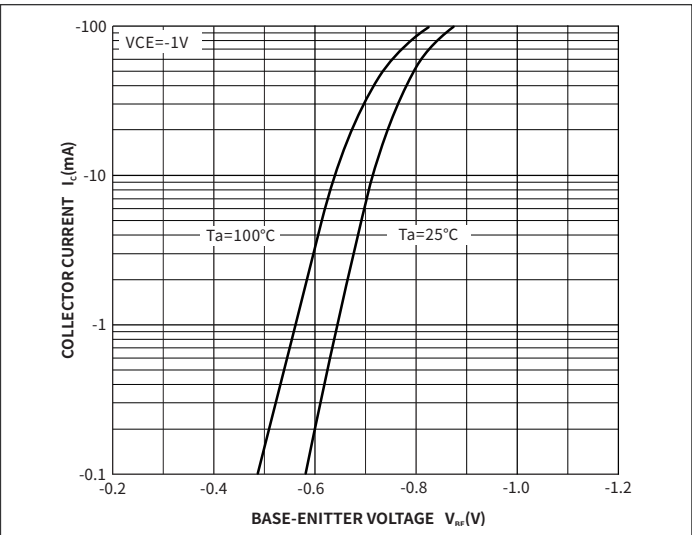


Fig.5 Base-Emitter On Voltage

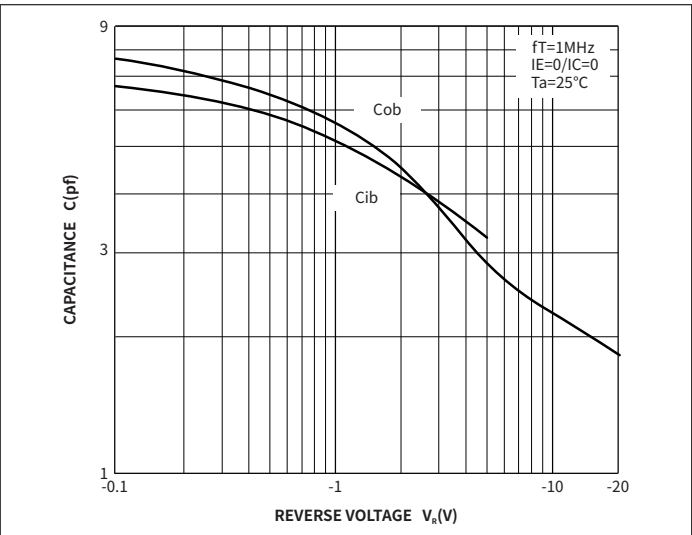


Fig.6 Cob/Cib- V_{cb} V_{EB}

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

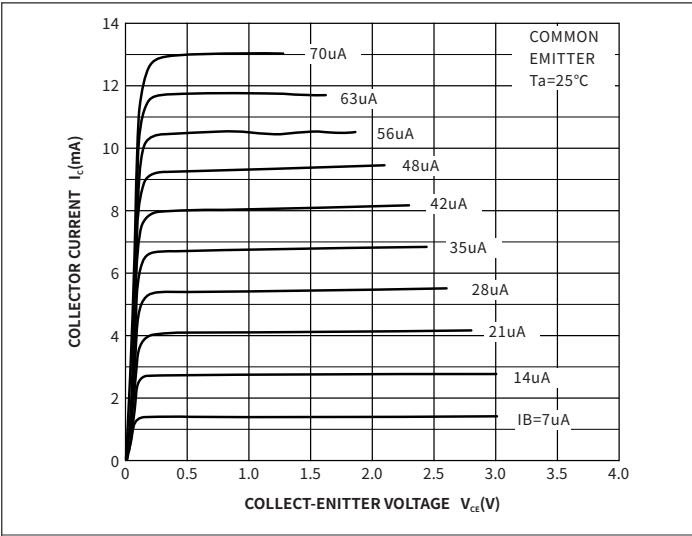


Fig.1 Static Characteristic

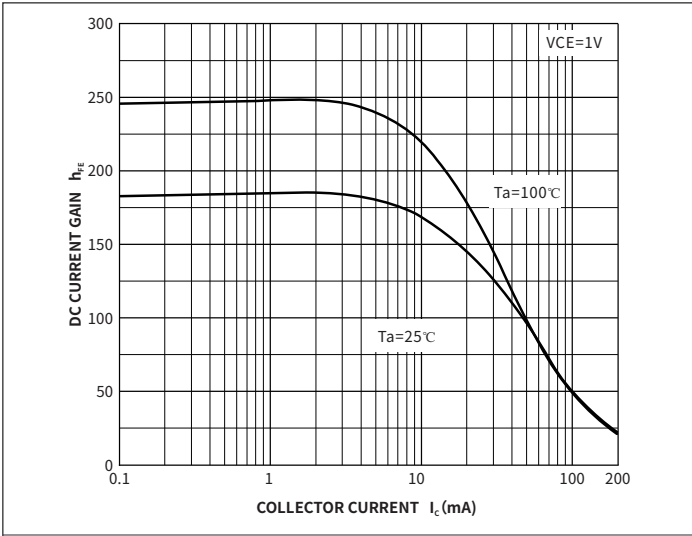


Fig.1 Static Characteristic

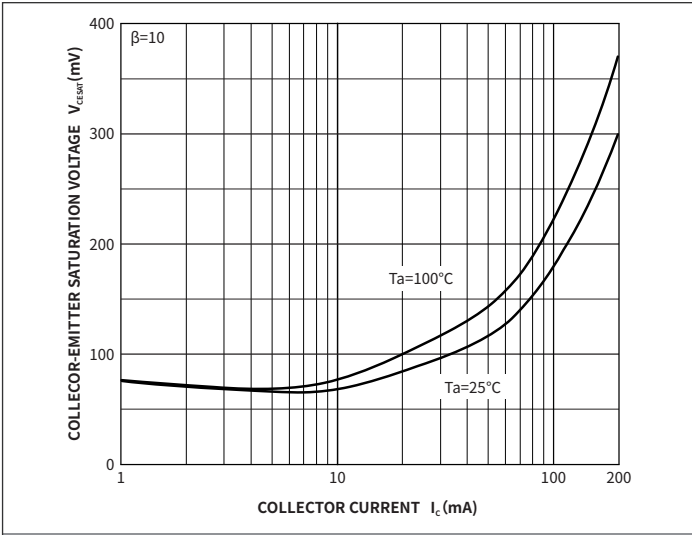


Fig.3 Collector-Emitter Saturation Voltage

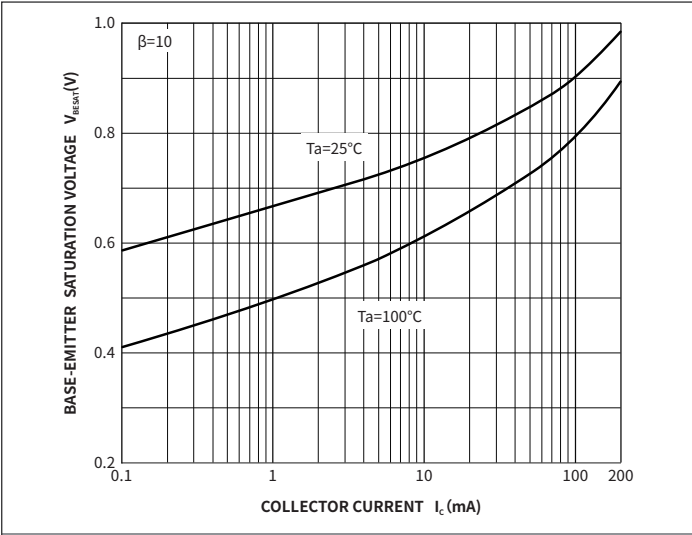


Fig.4 Base-Emitter Saturation Voltage

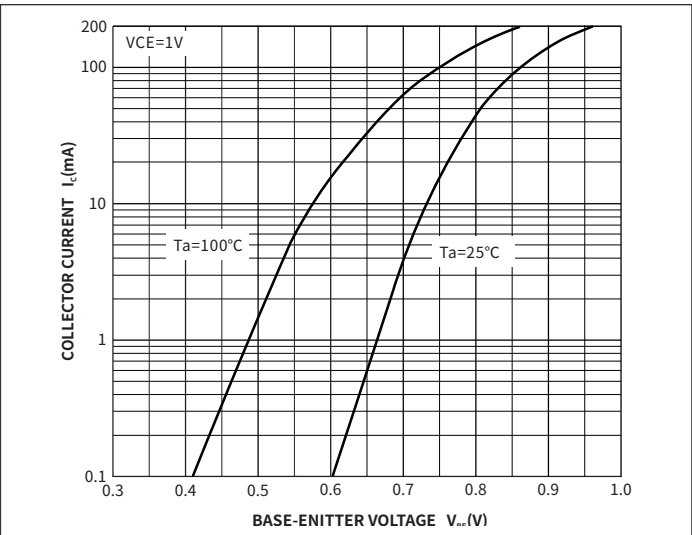


Fig.5 Base-Emitter On Voltage

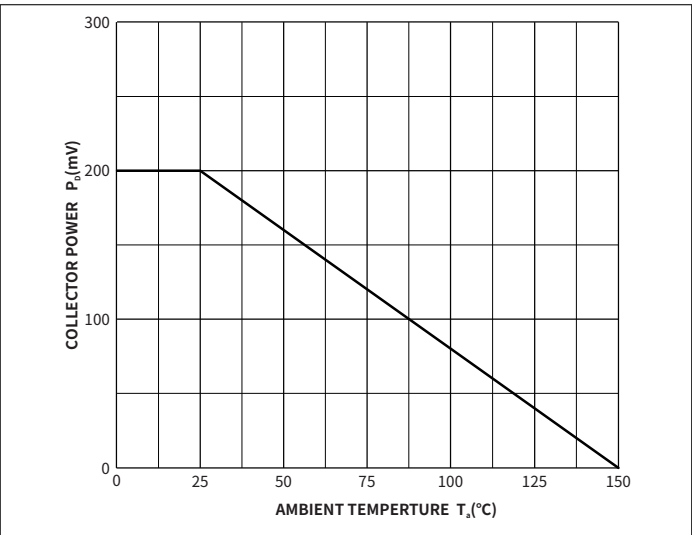


Fig.6 Power Derating Curve

● Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-363	R1	0.0068	3000	45000	180000	7"

● Package Outline Dimensions (SOT-363)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.09	1.10	0.035	0.043
A1	-	0.10	-	0.004
A2	0.90	1.00	0.035	0.039
b	0.15	0.35	0.006	0.014
c	0.10	0.15	0.004	0.006
D	2.00	2.20	0.079	0.087
E	1.15	1.35	0.045	0.053
E1	2.15	2.40	0.085	0.094
e	0.650TYP		0.026TYP	
e1	1.20	1.40	0.047	0.055
L	0.525REF		0.021REF	
L1	0.26	0.46	0.010	0.018
θ	-	8°	-	8°

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
G	-	0.65	-	0.025
H	-	1.94	-	0.076
X	0.40	-	0.016	-
Y	0.80	-	0.031	-