

SOT-363 Plastic-Encapsulate Transistors

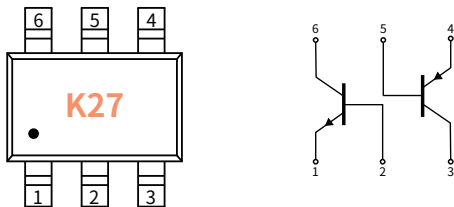
Features

- Power dissipation of 200mW
- Ideal for low power amplification and switching
- Dual Transistors (NPN+PNP)
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Mechanical Data

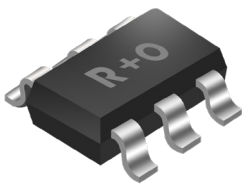
- Case: SOT-363
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Collector-Base Voltage
VCBO 75/-60V
Collector Current
0.6/-0.6 Ampere

SOT-363



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

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V_{CBO}	V	-60
Collector-Emitter Voltage	V_{CEO}		-60
Emitter-Base Voltage	V_{EBO}		-5.0
Collector Current	I_C	A	-0.6
Collector Power Dissipation ⁽¹⁾	P_C	W	0.2
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	150
Typical Thermal Resistance ⁽¹⁾	$R_{\theta JA}$	°C /W	625

PNP Small-signal Characteristics

ITEM	SYMBOL	Condition	UNIT	Min	Typ	Max
Transition frequency	f_T	$I_C = -50mA, V_{CE} = -20V, f = 100MHz$	MHz	200	—	—

Note :
(1):Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc.

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

PARAMETER	SYMBOL	UNIT	Condition	Min	Typ	Max
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	V	$I_C=-10\mu A, I_E=0$	-60	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=-10mA, I_B=0$	-60	—	—
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	$V_{CB}=-50V, I_E=0$	—	—	-10
Emitter-Base cut-off current	I_{EBO}		$V_{EB}=-5.0V, I_C=0$	—	—	-10
DC Current Gain ⁽¹⁾	$h_{FE(1)}$	—	$I_C=-0.1mA, V_{CE}=-10V$	75	—	—
	$h_{FE(2)}$	—	$I_C=-1mA, V_{CE}=-10V$	100	—	—
	$h_{FE(3)}$	—	$I_C=-10mA, V_{CE}=-10V$	100	—	—
	$h_{FE(4)}$	—	$I_C=-150mA, V_{CE}=-10V$	100	—	300
	$h_{FE(5)}$	—	$I_C=-500mA, V_{CE}=-10V$	50	—	—
Collector-Emitter Saturation Voltage ⁽¹⁾	$V_{CE(sat)}$	V	$I_C=-150mA, I_B=-15mA$	—	—	-0.4
			$I_C=-500mA, I_B=-50mA$			-1.6
Base-Emitter Saturation Voltage ⁽¹⁾	$V_{BE(sat)}$	V	$I_C=-150mA, I_B=-15mA$	—	—	-1.3
			$I_C=-500mA, I_B=-50mA$			-2.6
Delay time	T_d	ns	$V_{CC}=-30V, I_C=-150mA, I_{B1}=-15mA$	—	—	10
Rise time	T_r			—	—	40
Storage time	T_s		$V_{CC}=-60V, I_C=-150mA, I_{B1}=-I_{B2}=-15mA$	—	—	225
Fall time	T_f			—	—	60

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

PARAMETER	SYMBOL	UNIT	VALUE
Collector-Base Voltage	V_{CBO}	V	75
Collector-Emitter Voltage	V_{CEO}		40
Emitter-Base Voltage	V_{EBO}		6.0
Collector Current	I_C	A	0.6
Collector Power Dissipation ⁽²⁾	P_C	W	0.2
Storage temperature	T_{stg}	°C	-55 ~+150
Junction temperature	T_j	°C	150
Typical Thermal Resistance ⁽²⁾	$R_{\theta J-A}$	°C /W	625

Note :
(1):Short duration pulse test used to minimize self-heating effect.
(2)Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc.

● 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	$I_C=100\mu\text{A}, I_E=0$	75	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		$I_C=10\text{mA}, I_B=0$	40	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		$I_E=100\mu\text{A}, I_C=0$	6.0	—	—
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB}=60\text{V}, I_E=0$	—	—	10
Emitter-Base cut-off current	I_{EBO}		$V_{EB}=4.0\text{V}, I_C=0$	—	—	10
DC Current Gain ⁽¹⁾	$h_{FE(1)}$	—	$I_C=0.1\text{mA}, V_{CE}=10\text{V}$	35	—	—
	$h_{FE(2)}$	—	$I_C=1\text{mA}, V_{CE}=10\text{V}$	50	—	—
	$h_{FE(3)}$	—	$I_C=10\text{mA}, V_{CE}=10\text{V}$	75	—	—
	$h_{FE(4)}$	—	$I_C=150\text{mA}, V_{CE}=10\text{V}$	100	—	300
	$h_{FE(5)}$	—	$I_C=150\text{mA}, V_{CE}=1\text{V}$	35	—	—
	$h_{FE(6)}$	—	$I_C=500\text{mA}, V_{CE}=10\text{V}$	40	—	—
Collector-Emitter Saturation Voltage ⁽¹⁾	$V_{CE(sat)}$	V	$I_C=150\text{mA}, I_B=15\text{mA}$	—	—	0.3
			$I_C=500\text{mA}, I_B=50\text{mA}$			1
Base-Emitter Saturation Voltage ⁽¹⁾	$V_{BE(sat)}$	V	$I_C=150\text{mA}, I_B=15\text{mA}$	—	—	1.2
			$I_C=500\text{mA}, I_B=50\text{mA}$			2
Delay time	T_d	ns	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}, V_{BE(off)}=-0.5\text{V}$	—	—	10
Rise time	T_r			—	—	25
Storage time	T_s		$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=-I_{B2}=5\text{mA}$	—	—	225
Fall time	T_f			—	—	60
Collector output capacitance	C_{ob}	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	—	—	8
Collector input capacitance	C_{ib}		$V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$	—	—	25

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

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

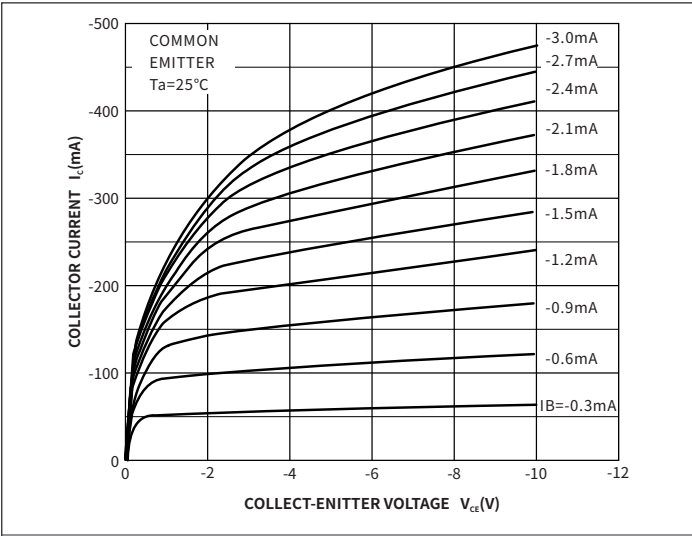


Fig.1 Static Characteristic

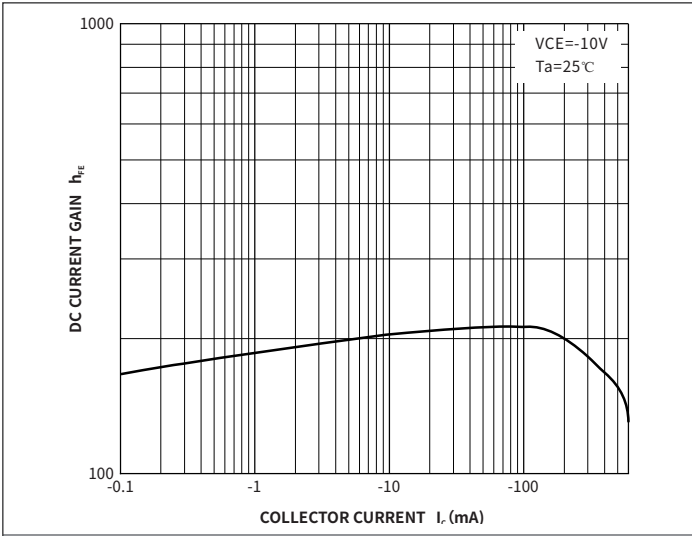


Fig.1 Static Characteristic

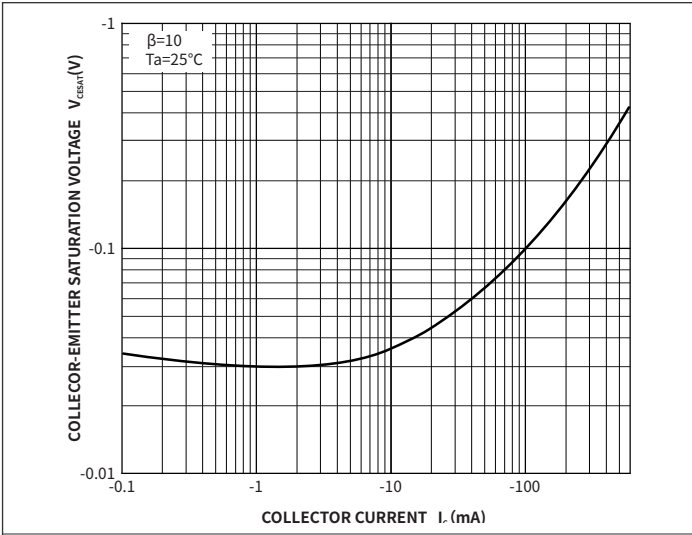


Fig.3 Collector-Emitter Saturation Voltage

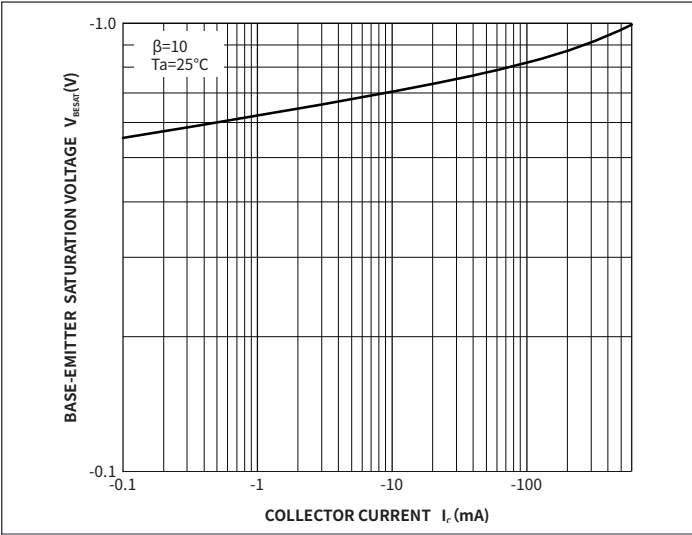


Fig.4 Base-Emitter Saturation Voltage

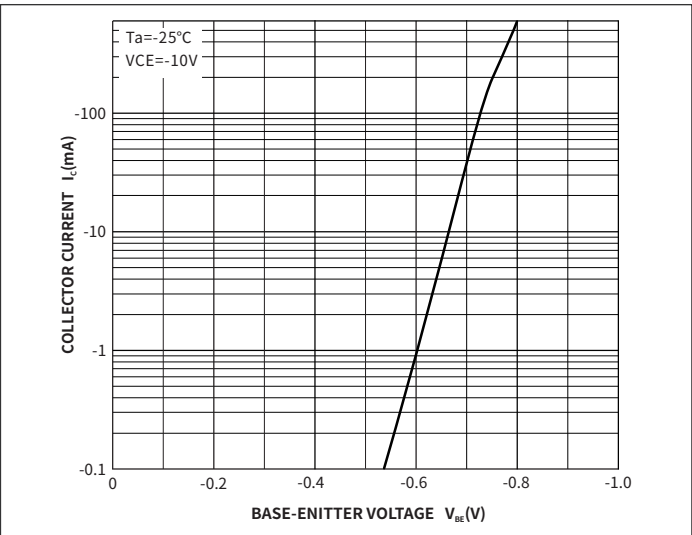


Fig.5 Base-Emitter On Voltage

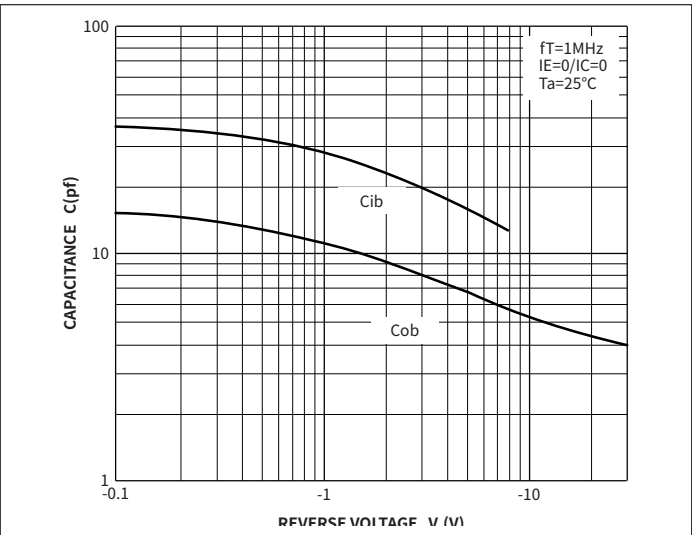


Fig.6 Cob/Cib- V_{CB} V_{EB}

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

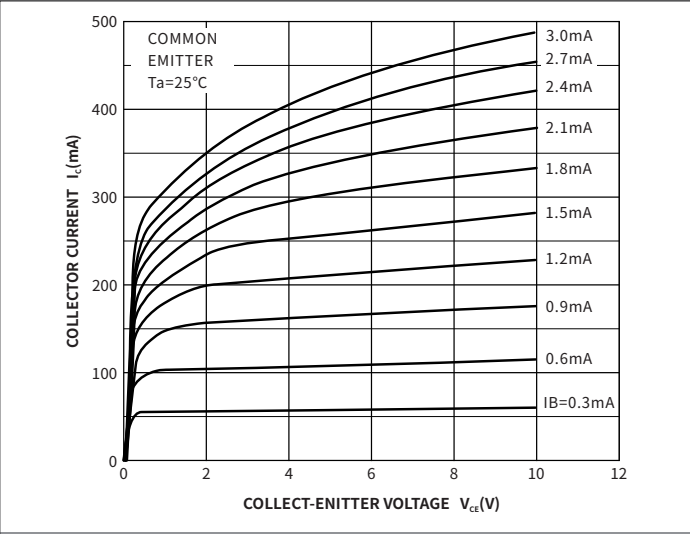


Fig.1 Static Characteristic

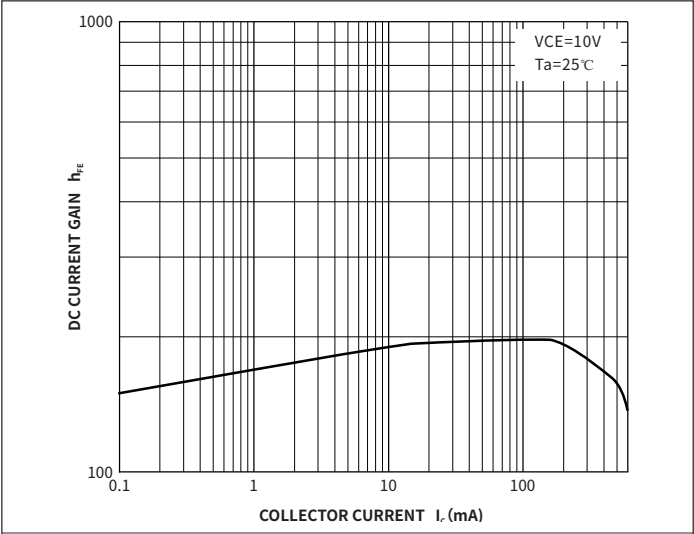


Fig.1 Static Characteristic

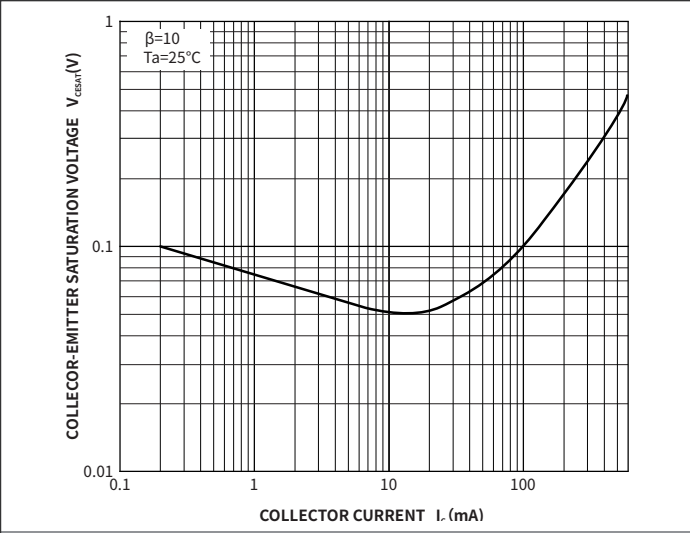


Fig.3 Collector-Emitter Saturation Voltage

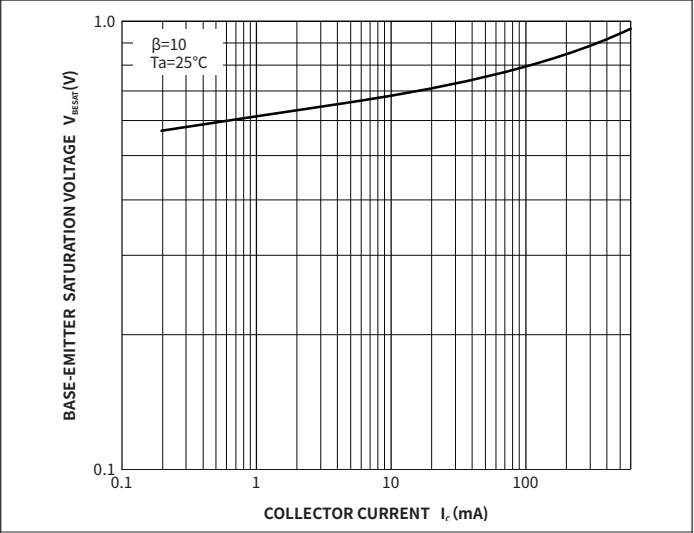


Fig.4 Base-Emitter Saturation Voltage

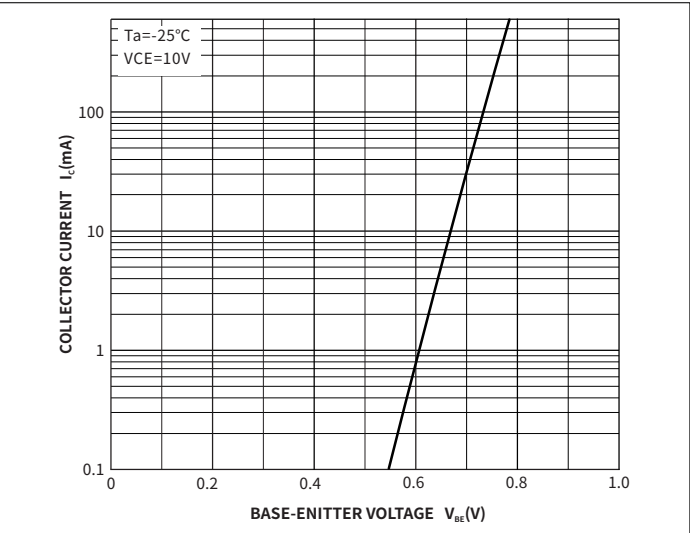


Fig.5 Base-Emitter On Voltage

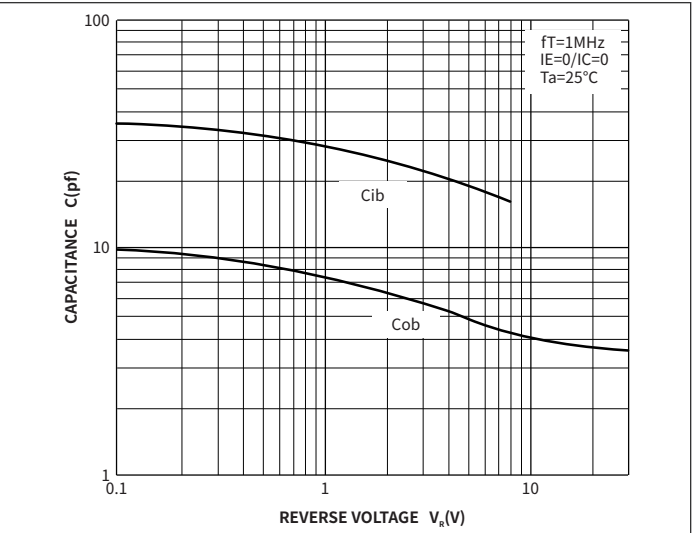


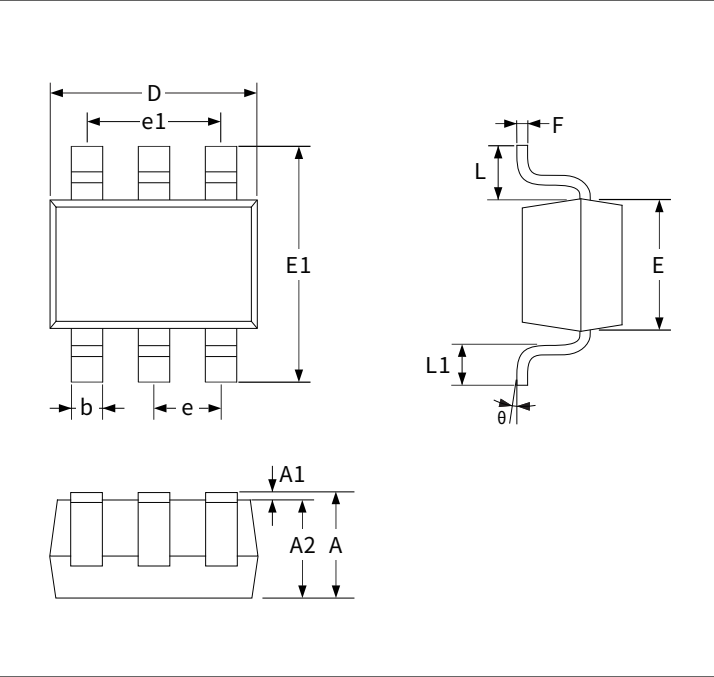
Fig.6 Cob/Cib-V_{CB} V_{EB}

● 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"

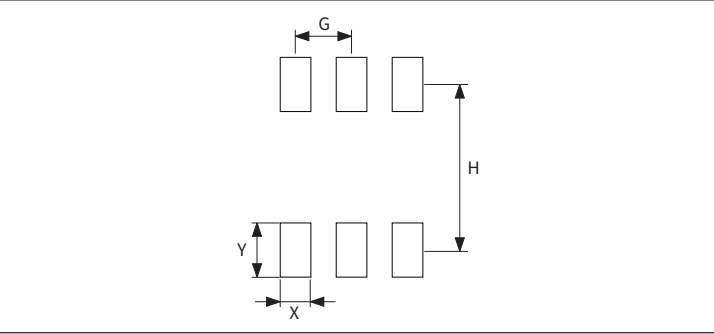
● Package Outline Dimensions (SOT-363)

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°

The diagram illustrates the mechanical dimensions of the SOT-363 package. It includes three views: a top view showing dimensions D (total width), e1 (pitch), E1 (total height), b (lead width), and e (lead pitch); a side view showing dimensions F (lead thickness), L (lead length), E (package height), L1 (lead height), and θ (lead angle); and a bottom view showing dimensions A1, A2, and A (lead thicknesses).

● 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	-

The diagram shows the suggested pad layout for the SOT-363 package. It includes dimensions G (pad width), H (pad height), X (pad spacing), and Y (pad pitch).