SOT-363 Plastic-Encapsulate Transistors

Features

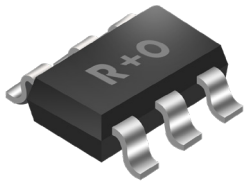
- Power dissipation of 200mW
- Ideal for low power amplification and switching
- Dual Transistors (NPN+PNP)
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

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

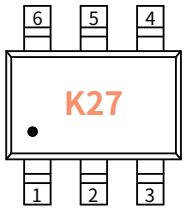
Mechanical Data

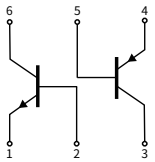
- Case: SOT-363
  Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

SOT-363



Function Diagram





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)	$R_{\theta J-A}$	°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=-10μA, 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=-10μA, 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	Td	ns	V_{CC}=-30V，I_C= -150mA, I_{B1}= -15mA	—	—	10
Rise time	Tr			—	—	40
Storage time	Ts		V_{CC}=-60V，I_C= -150mA, I_{B1}= -I_{B2}=-15mA	—	—	225
Fall time	Tf			—	—	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]	$R_{\theta J\text{-}A}$	°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= 20mA, V_{CE}= 20V ,f=100MHz	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=100μA, I_E=0	75	—	—
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$		I_C=10mA, I_B=0	40	—	—
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$		I_E=100μA, I_C=0	6.0	—	—
Collector-Base cut-off current	I_{CBO}	nA	V_{CB}=60V,I_E=0	—	—	10
Emitter-Base cut-off current	I_{EBO}		V_{EB}= 4.0V,I_C=0	—	—	10
DC Current Gain(1)	$h_{FE\ (1)}$	—	I_C=0.1mA V_{CE}=10V	35	—	—
	$h_{FE\ (2)}$	—	I_C=1mA V_{CE}= 10V	50	—	—
	$h_{FE\ (3)}$	—	I_C=10mA V_{CE}= 10V	75	—	—
	$h_{FE\ (4)}$	—	I_C=150mA V_{CE}= 10V	100	—	300
	$h_{FE\ (5)}$	—	I_C=150mA V_{CE}= 1V	35	—	—
	$h_{FE\ (6)}$	—	I_C=500mA V_{CE}= 10V	40	—	—
Collector-Emitter Saturation Voltage(1)	$V_{CE(sat)}$	V	I_C= 150mA I_B= 15mA	—	—	0.3
			I_C= 500mA I_B= 50mA			1
Base-Emitter Saturation Voltage (1)	$V_{BE(sat)}$	V	I_C= 150mA I_B= 15mA	—	—	1.2
			I_C= 500mA I_B= 50mA			2
Delay time	Td	ns	V_{CC}=30V,I_C= 150mA, I_{B1}= 15mA,$V_{BE(off)}$= -0.5V	—	—	10
Rise time	Tr			—	—	25
Storage time	Ts		V_{CC}=30V， I_C= 150mA, I_{B1}= -I_{B2}=5mA	—	—	225
Fall time	Tf			—	—	60
Collector output capacitance	C_{ob}	pF	V_{CB}=10V,I_E= 0,f=1MHz	—	—	8
Collector input capacitance	C_{ib}		V_{EB}=0.5V, I_C= 0,f=1MHz	—	—	25

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

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

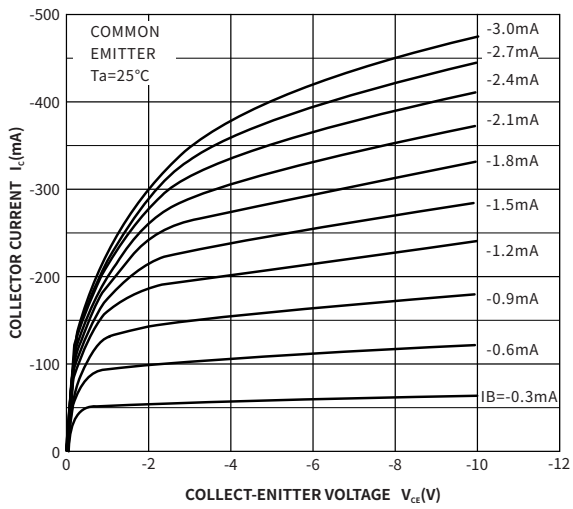


Fig.1 Static Characteristic

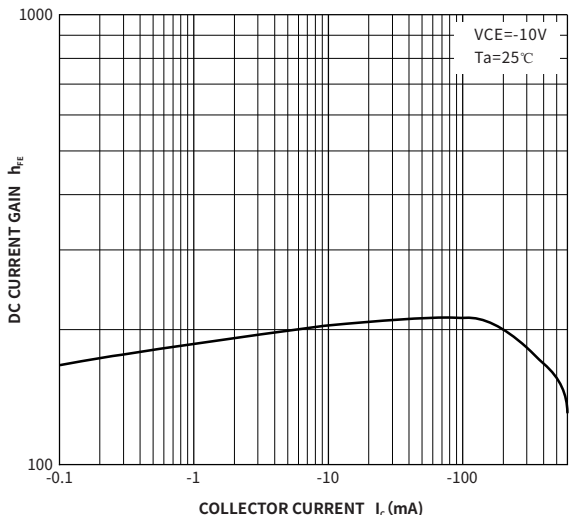


Fig.1 Static Characteristic

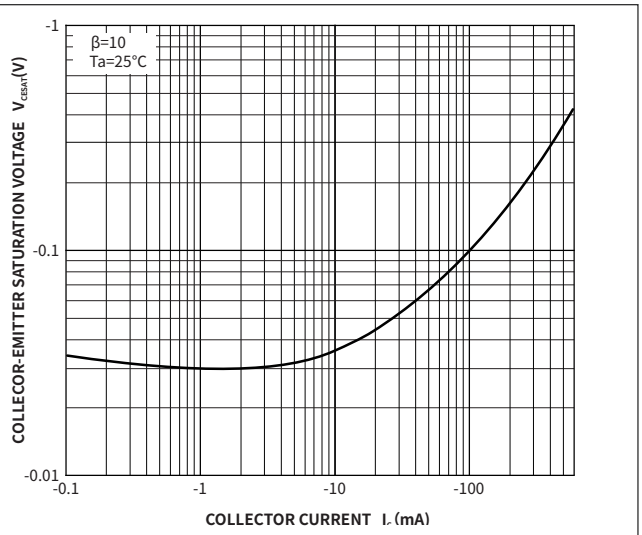


Fig.3 Collector-Emitter Saturation Voltage

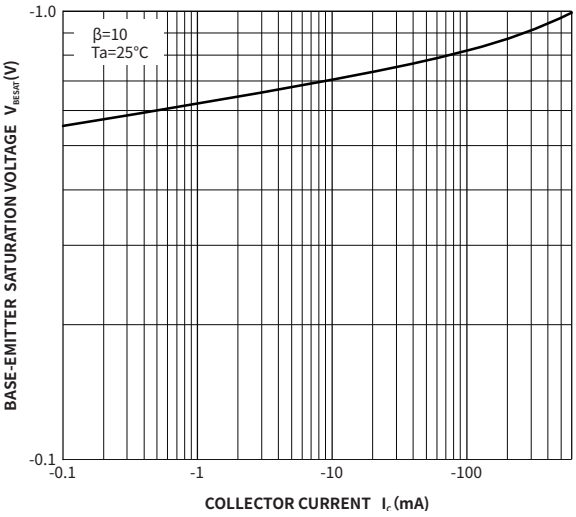


Fig.4 Base-Emitter Saturation Voltage

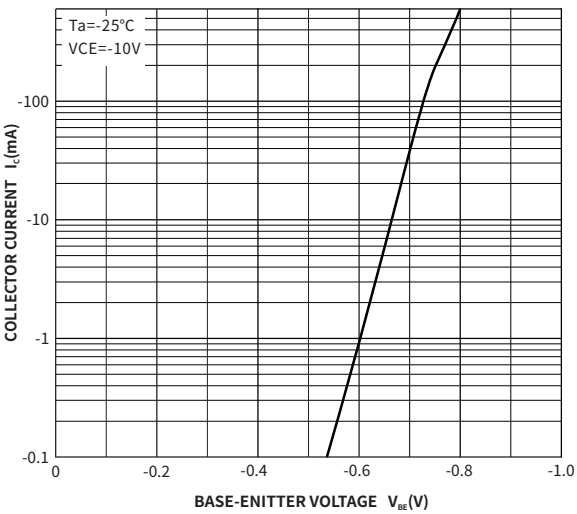


Fig.5 Base-Emitter On Voltage

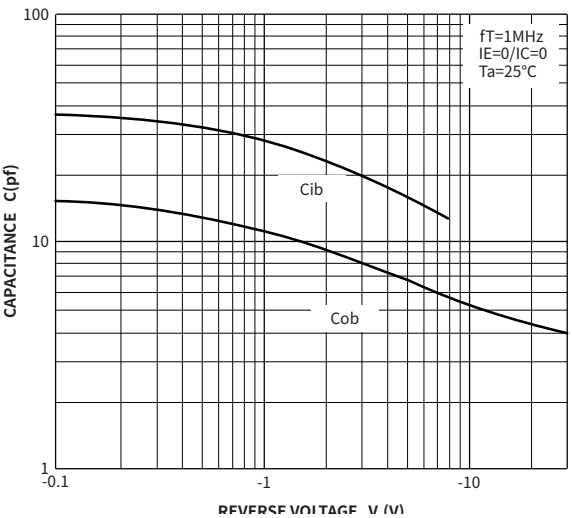


Fig.6 Cob/Cib-$V_{CB}V_{EB}$

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

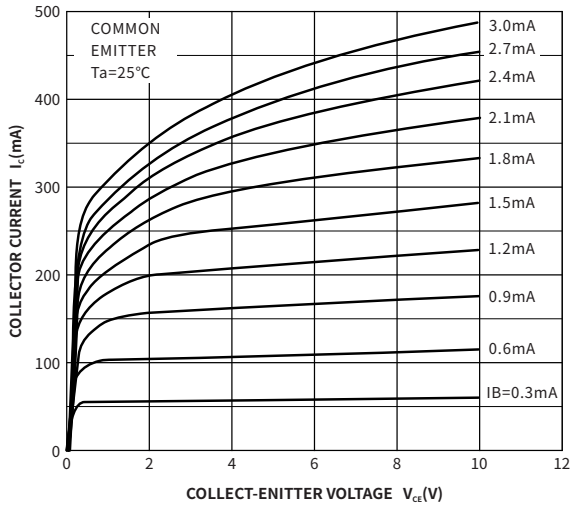


Fig.1 Static Characteristic

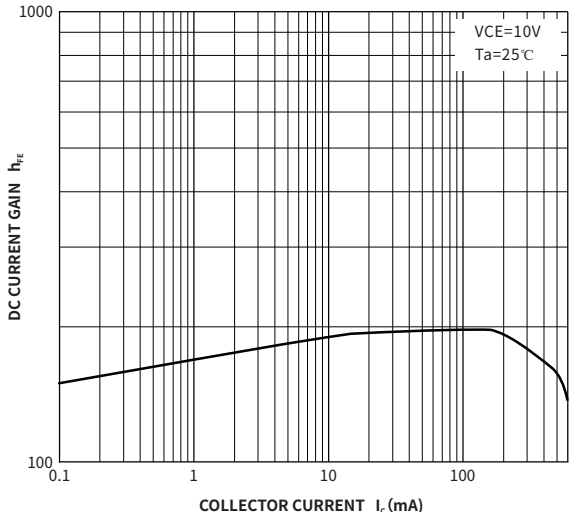


Fig.1 Static Characteristic

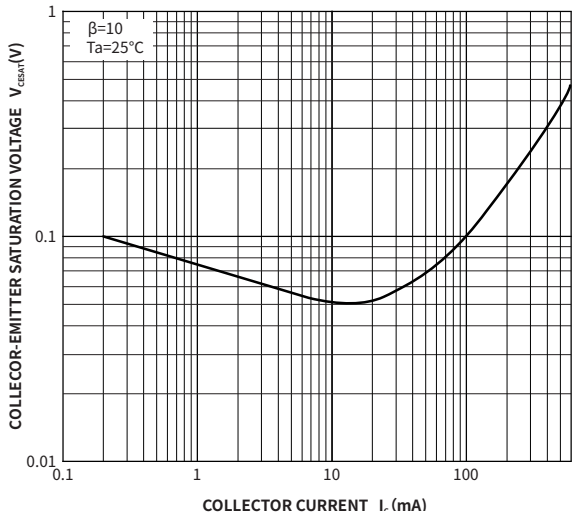
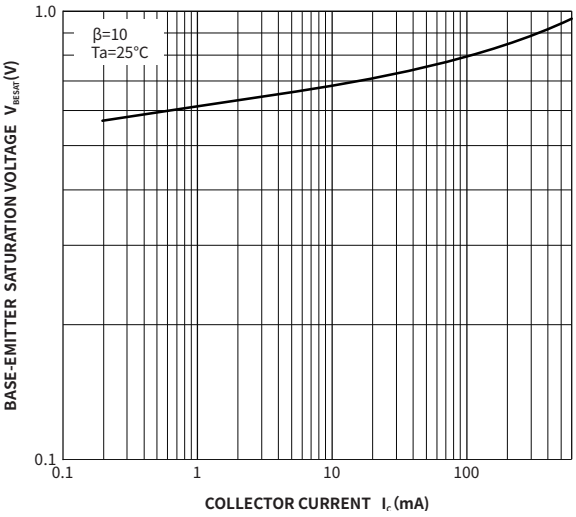


Fig.3 Collector-Emitter Saturation Voltage



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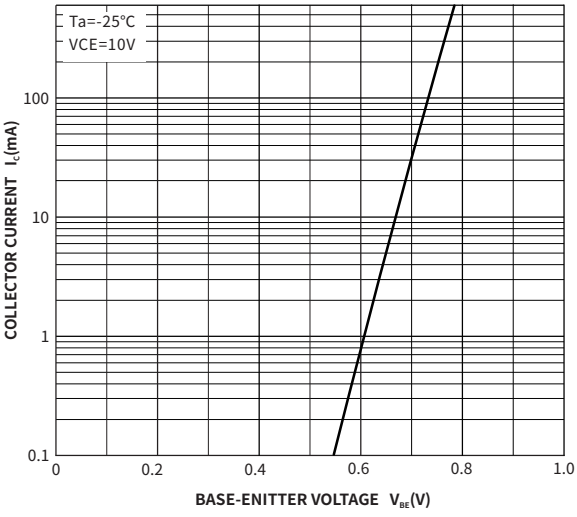


Fig.5 Base-Emitter On Voltage

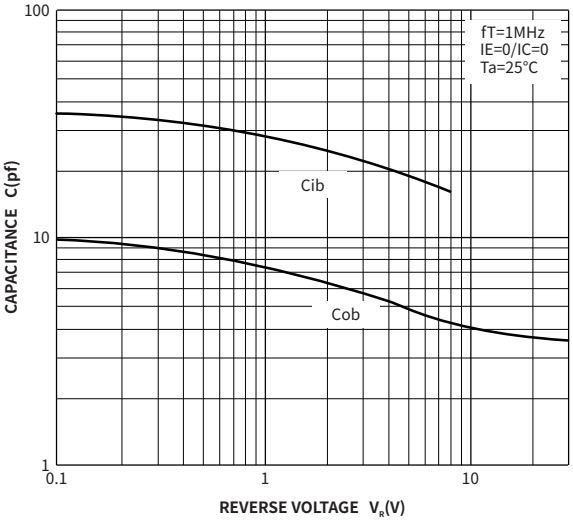
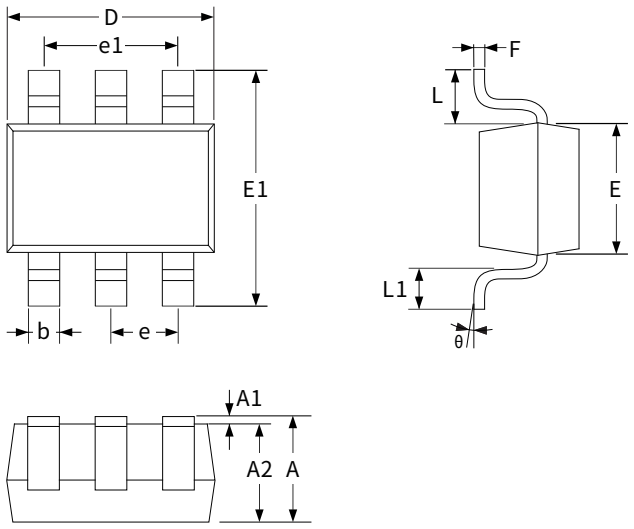


Fig.6 Cob/Cib-$V_{CB}V_{EB}$

Ordering Information

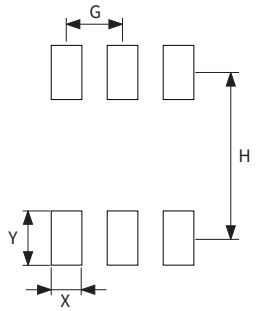
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-363	R1	0.0068	3000	45000	180000	7''

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°

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	-

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