

## Descriptions

Silicon PNP and NPN transistor in a SOT-363 Plastic Package.

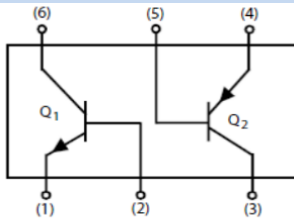
## Features

High DC Current Gain, Low Collector to Emitter Saturation Voltage.

## Applications

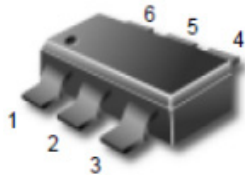
General purpose amplifier and switching.

## Equivalent Circuit



Q1: NPN Q2: PNP

## Pinning



PIN 1、 4 : Emitter

PIN 2、 5 : Base

PIN 3、 6 : Collector

## $h_{FE}$ Classifications & Marking

See Marking Instructions.

## Absolute Maximum Ratings(Ta=25°C) (NPN)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	60	V
Collector to Emitter Voltage	$V_{CEO}$	40	V
Emitter to Base Voltage	$V_{EBO}$	6.0	V
Collector Current	$I_C$	200	mA
Collector Power Dissipation	$P_C$	200	mW
	* $P_C$	350	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	625	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

## Absolute Maximum Ratings(Ta=25°C) (PNP)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	-40	V
Collector to Emitter Voltage	$V_{CEO}$	-40	V
Emitter to Base Voltage	$V_{EBO}$	-5.0	V
Collector Current	$I_C$	-200	mA
Collector Power Dissipation	$P_C$	300	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	625	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

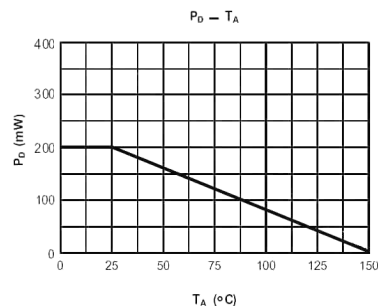
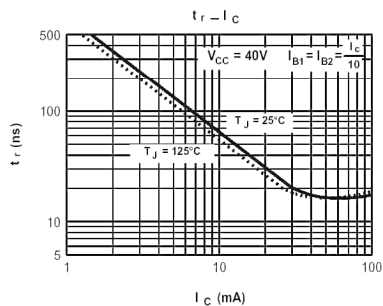
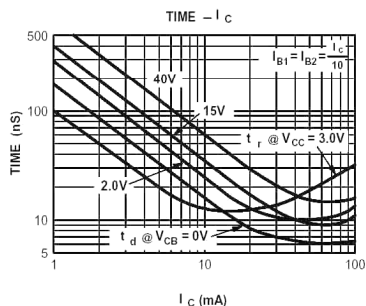
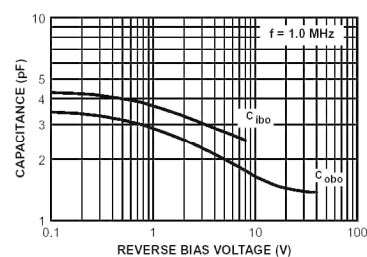
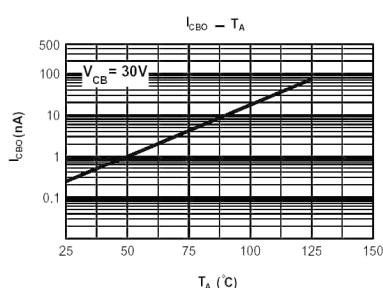
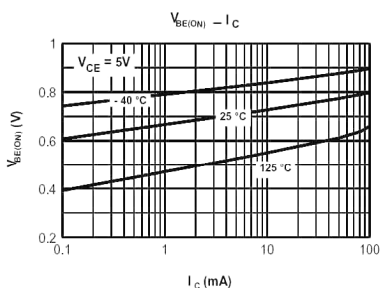
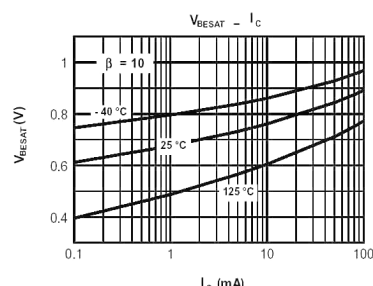
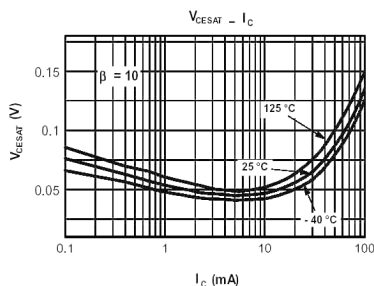
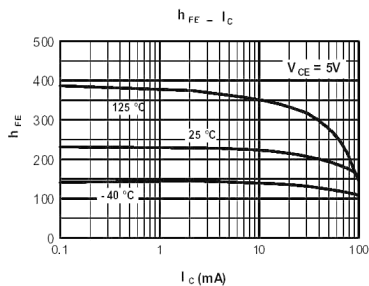
## Electrical Characteristics(Ta=25°C) (NPN)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=10\mu A$ $I_E=0$	60			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=1.0mA$ $I_B=0$	40			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=10\mu A$ $I_C=0$	6.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=30V$ $I_E=0$			0.05	$\mu A$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=3.0V$ $I_C=0$			0.05	$\mu A$
DC Current Gain	$h_{FE(1)}$	$V_{CE}=1.0V$ $I_C=10mA$	100		300	
	$h_{FE(2)}$	$V_{CE}=1.0V$ $I_C=100mA$	30			
	$h_{FE(3)}$	$V_{CE}=1.0V$ $I_C=50mA$	60			
	$h_{FE(4)}$	$V_{CE}=1.0V$ $I_C=1.0mA$	70			
	$h_{FE(5)}$	$V_{CE}=1.0V$ $I_C=0.1mA$	40			
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=10mA$ $I_B=1.0mA$			0.2	V
	$V_{CE(sat)(2)}$	$I_C=50mA$ $I_B=5.0mA$			0.3	V
Base-Emitter Saturation Voltage	$V_{BE(sat)(1)}$	$I_C=10mA$ $I_B=1.0mA$	0.65		0.85	V
	$V_{BE(sat)(2)}$	$I_C=50mA$ $I_B=5.0mA$			0.95	V
Transition Frequency	$f_T$	$V_{CE}=20V$ $I_C=10mA$ $f=100MHz$	300			MHz
Output Capacitance	$C_{ob}$	$V_{CB}=5.0V$ $f=1.0MHz$			4.0	pF
Storage Time	$t_{stg}$	$V_{CC}=3.0V$ $I_C=10mA$ $I_{B1}=-I_{B2}=1.0mA$			200	ns
Fall Time	$t_f$	$V_{CC}=3.0V$ $I_C=10mA$ $I_{B1}=-I_{B2}=1.0mA$			50	ns
Delay Time	$t_d$	$V_{CC}=3.0V$ $V_{BE}=0.5V$ $I_C=10mA$ $I_{B1}=1.0mA$			35	ns
Rise Time	$t_r$	$V_{CC}=3.0V$ $V_{BE}=0.5V$ $I_C=10mA$ $I_{B1}=1.0mA$			35	ns
Input Capacitance	$C_{ib}$	$V_{EB}=0.5V$ $f=1.0MHz$			8.0	pF

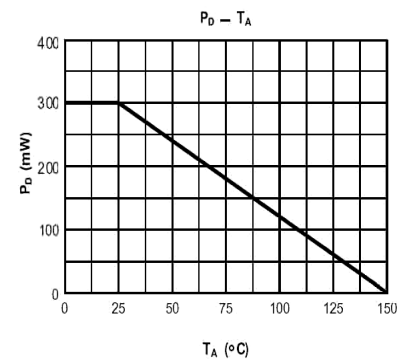
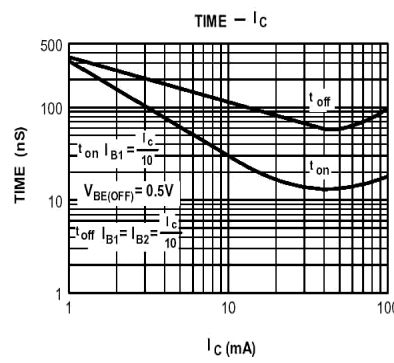
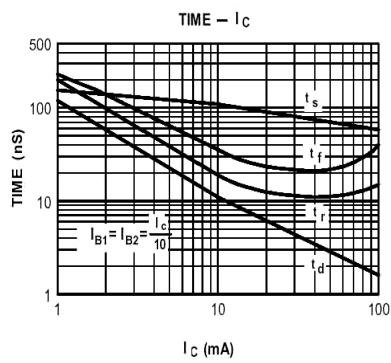
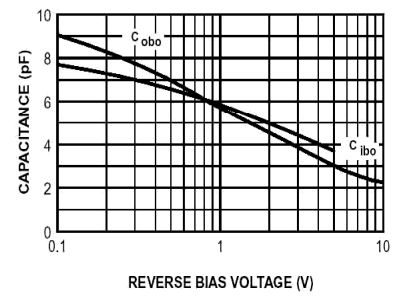
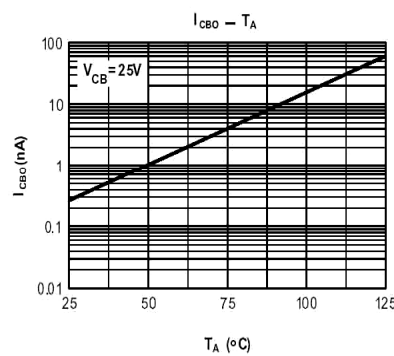
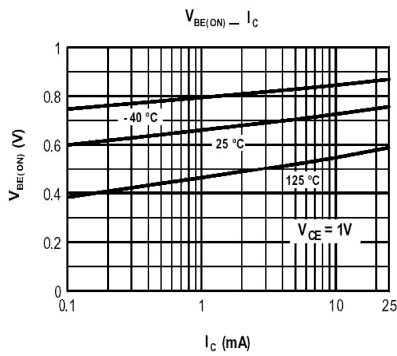
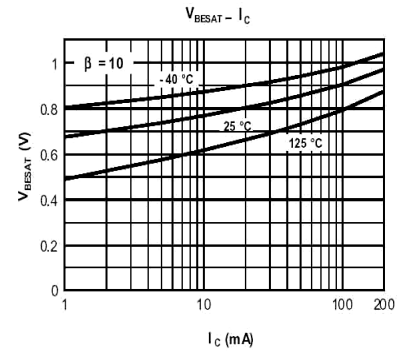
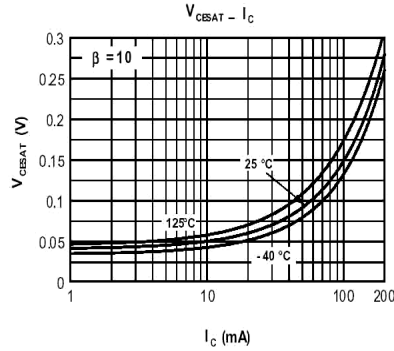
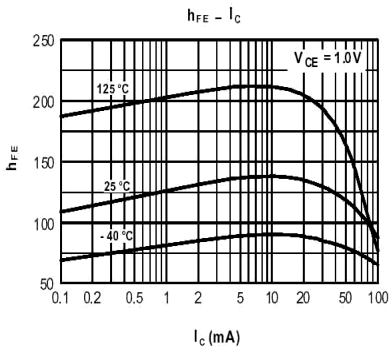
## Electrical Characteristics(Ta=25°C) (PNP)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=-10\mu A$ $I_E=0$	-40			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=-1.0mA$ $I_B=0$	-40			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=-10\mu A$ $I_C=0$	-5.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-30V$ $I_E=0$			-0.05	$\mu A$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=-3.0V$ $I_C=0$			-0.05	$\mu A$
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-1.0V$ $I_C=-10mA$	100		300	
	$h_{FE(2)}$	$V_{CE}=-1.0V$ $I_C=-100mA$	30			
	$h_{FE(3)}$	$V_{CE}=-1.0V$ $I_C=-50mA$	60			
	$h_{FE(4)}$	$V_{CE}=-1.0V$ $I_C=-1.0mA$	80			
	$h_{FE(5)}$	$V_{CE}=-1.0V$ $I_C=-0.1mA$	60			
Collector-Emitter Saturation voltage	$V_{CE(sat)(1)}$	$I_C=-10mA$ $I_B=-1.0mA$			-0.25	V
	$V_{CE(sat)(2)}$	$I_C=-50mA$ $I_B=-5.0mA$			-0.4	V
Base-Emitter Saturation Voltage	$V_{BE(sat)(1)}$	$I_C=-10mA$ $I_B=-1.0mA$	-0.65		-0.85	V
	$V_{BE(sat)(2)}$	$I_C=-50mA$ $I_B=-5.0mA$			-0.95	V
Transition Frequency	$f_T$	$V_{CE}=-20V$ $I_C=-10mA$ $f=100MHz$	250			MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-5.0V$ $f=1.0MHz$			4.5	pF
Storage Time	$t_{stg}$	$V_{CC}=-3.0V$ $I_C=-10mA$ $I_{B1}=-I_{B2}=-1.0mA$			225	ns
Fall Time	$t_f$	$V_{CC}=-3.0V$ $I_C=-10mA$ $I_{B1}=-I_{B2}=-1.0mA$			75	ns
Delay Time	$t_d$	$V_{CC}=-3.0V$ $V_{BE}=-0.5V$ $I_C=-10mA$ $I_{B1}=-1.0mA$			35	ns
Rise Time	$t_r$	$V_{CC}=-3.0V$ $V_{BE}=-0.5V$ $I_C=-10mA$ $I_{B1}=-1.0mA$			35	ns
Input Capacitance	$C_{ib}$	$V_{EB}=-0.5V$ $f=1.0MHz$			10	pF

## Electrical Characteristic Curve (NPN)

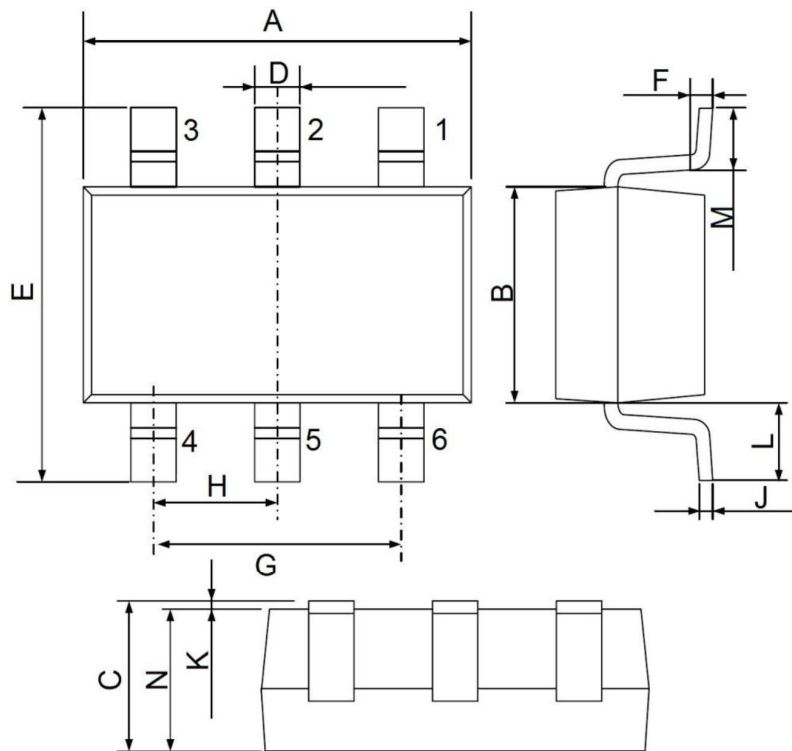


## Electrical Characteristic Curve (PNP)



## Package Dimensions

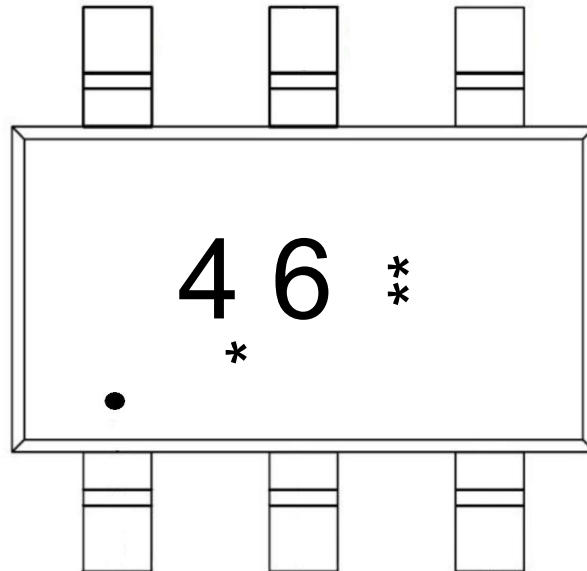
### SOT-363



UNIT: mm

DIM	MIN	MAX
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	2.15	2.45
F	0.20 Typ.	
G	1.20	1.40
H	0.65 Typ.	
J	0.08	0.15
K	0.00	0.10
L	0.525 Ref.	
M	0.26	0.46
N	0.90	1.00

## Marking Instructions

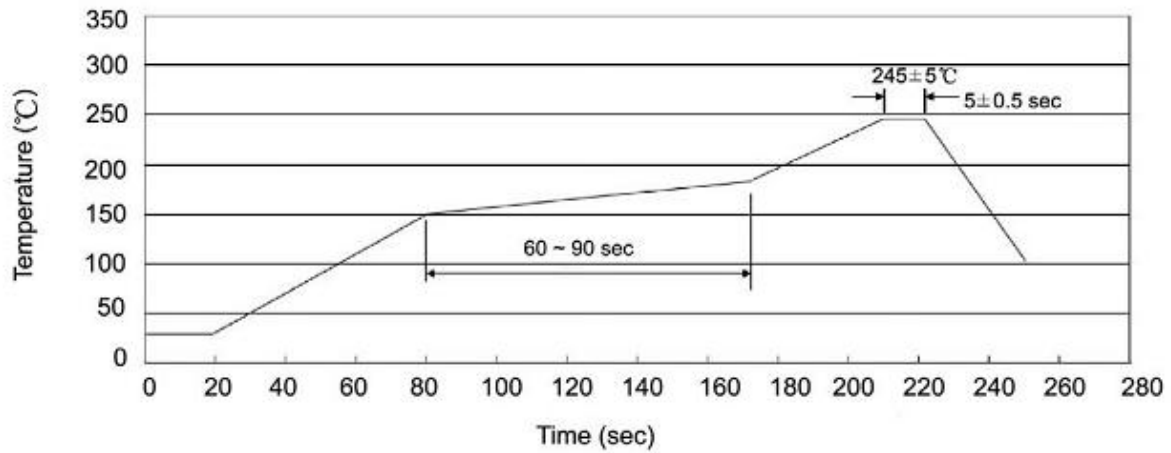


## Note:

- : "1" Pin
- 46 : Product Type Code
- \*\*\*: Lot No. Code, code change with Lot No.



## Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

1. Preheating: 150~180°C, Time: 60~90sec.
2. Peak Temp.: 245±5°C, Duration: 5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

## Resistance to Soldering Heat Test Conditions

Temp.: 260±5°C      Time: 10±1 sec

单击下面可查看定价，库存，交付和生命周期等信息

[>>SHIKUES\(时科\)](#)