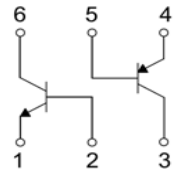


### Features

- Epitaxial die construction
- Two isolated transistor NPN and PNP in one package



SOT-363



Schematic Diagram

### NPN Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	45	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current –Continuous	$I_C$	0.1	A
Collector Power Dissipation	$P_C$	200	mW
Junction Temperature	$T_J$	-55 to +150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150	$^\circ\text{C}$

### NPN Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	50	-	-	V
Collector-emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	45	-	-	V
Emitter-base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1\mu\text{A}, I_C=0$	6	-	-	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=30\text{V}, I_E=0$	-	-	15	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$	-	-	15	nA
DC Current Gain	$h_{FE}$	$V_{CE}=5\text{V}, I_C=2\text{mA}$	200	-	450	-
Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$	-	-	0.25	V
	$V_{CE(sat)}$	$I_C=100\text{mA}, I_B=5\text{mA}$	-	-	0.6	V
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10\text{mA}, I_B=0.5\text{mA}$	-	0.7	-	V
	$V_{BE(sat)}$	$I_C=100\text{mA}, I_B=5\text{mA}$	-	0.9	-	V
Base-emitter Voltage	$V_{BE(on)}$	$V_{CE}=5\text{V}, I_C=2\text{mA}$	0.58	-	0.7	V
	$V_{BE(on)}$	$V_{CE}=5\text{V}, I_C=10\text{mA}$	-	-	0.72	V
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	-	-	6.0	pF
Transition Frequency	$f_T$	$V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	100	-	-	MHz
Noise Figure	NF	$V_{CE}=5\text{V}, I_C=0.2\text{mA}, f=1\text{kHz}, R_g=2\text{K}\Omega, \Delta f=200\text{Hz}$	-	-	10	dB

### PNP Absolute Maximum Ratings

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

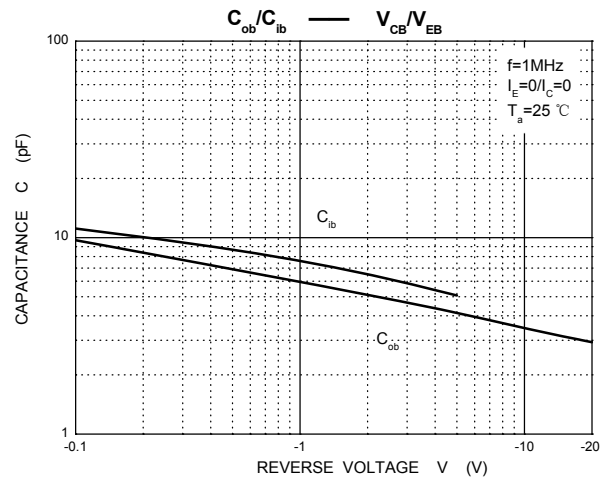
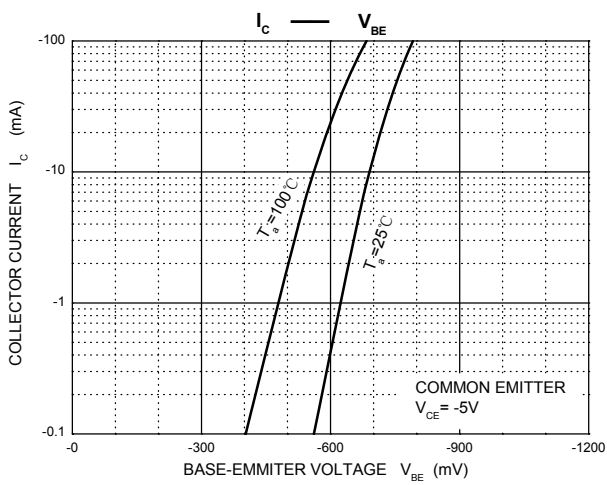
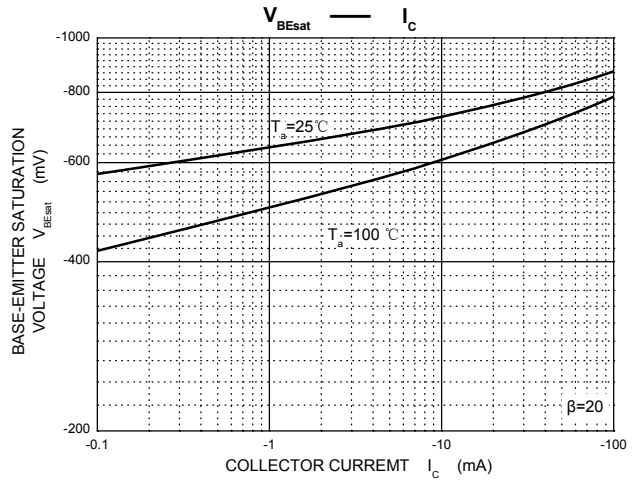
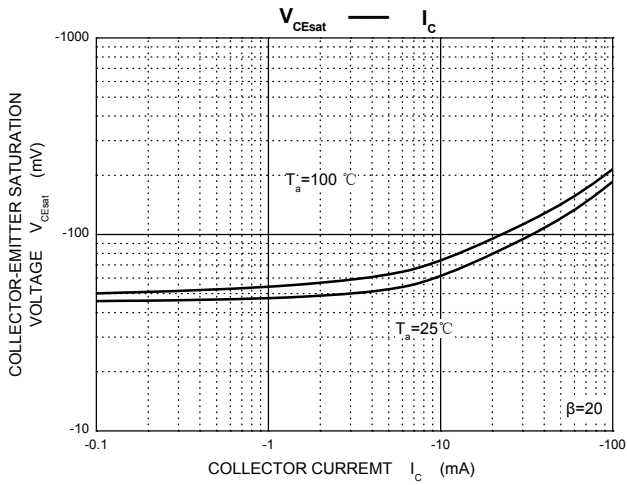
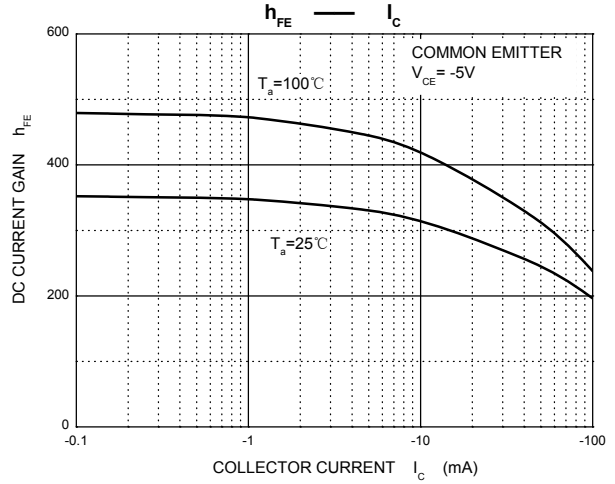
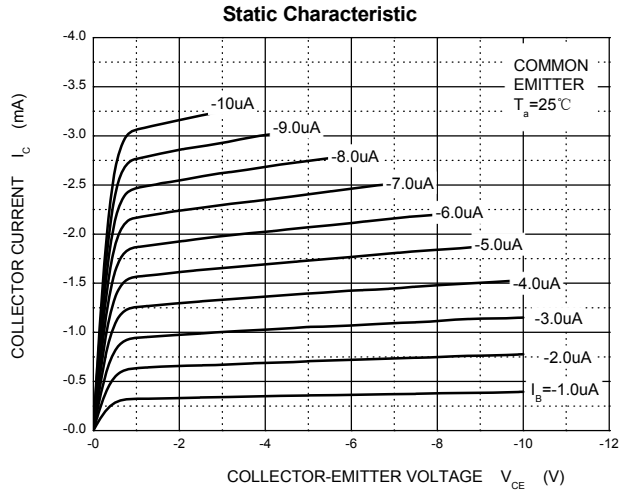
Parameter	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-50	V
Collector-Emitter Voltage	$V_{CEO}$	-45	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current –Continuous	$I_C$	-0.1	A
Collector Power Dissipation	$P_C$	200	mW
Junction Temperature	$T_J$	-55 to +150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to +150	$^\circ\text{C}$

### PNP Electrical Characteristics

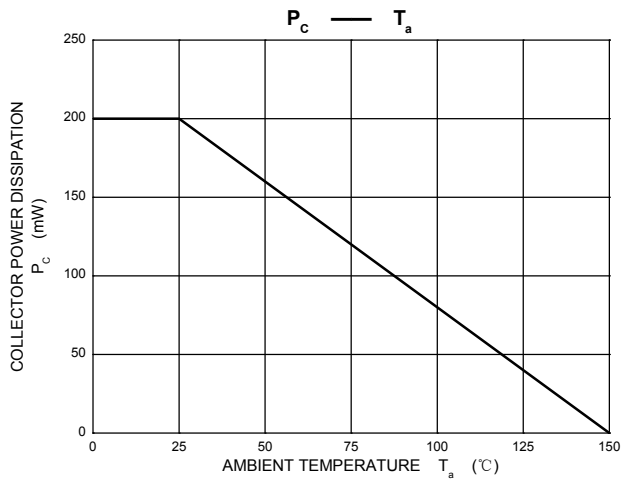
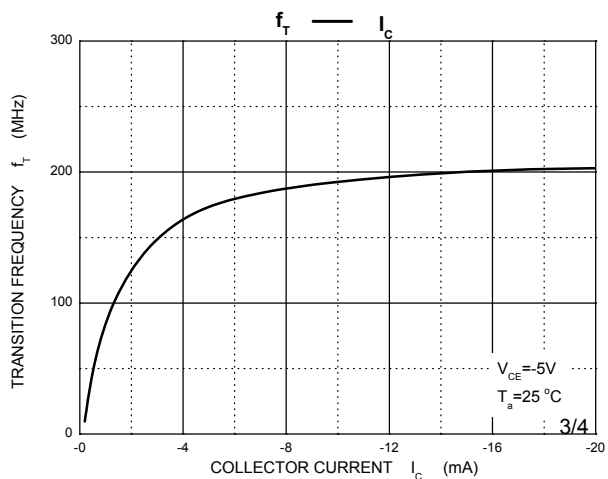
( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}, I_E = 0$	-50	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}, I_B = 0$	-45	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -1\mu\text{A}, I_C = 0$	-5	-	-	V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = -30\text{V}, I_E = 0$	-	-	-15	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = -5\text{V}, I_C = 0$	-	-	-15	nA
DC Current Gain	$h_{FE1}$	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	220	-	475	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-	-0.3	V
	$V_{CE(sat)}$	$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-	-0.65	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}, I_B = -0.5\text{mA}$	-	-0.7	-	V
	$V_{BE(sat)}$	$I_C = -100\text{mA}, I_B = -5\text{mA}$	-	-	-0.95	V
Base-Emitter Voltage	$V_{BE(on)}$	$V_{CE} = -5\text{V}, I_C = -2\text{mA}$	-0.6	-	-0.75	V
	$V_{BE(on)}$	$V_{CE} = -5\text{V}, I_C = -10\text{mA}$	-	-	-0.82	V
Collector Output Capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$	-	-	4.5	pF
Transition Frequency	$f_T$	$V_{CE} = -5\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$	100	-	-	MHz
Noise Figure	NF	$V_{CE} = -5\text{V}, I_C = -0.2\text{mA}, f = 1\text{kHz}, R_g = 2\text{k}\Omega, \Delta f = 200\text{Hz}$	-	-	10	dB

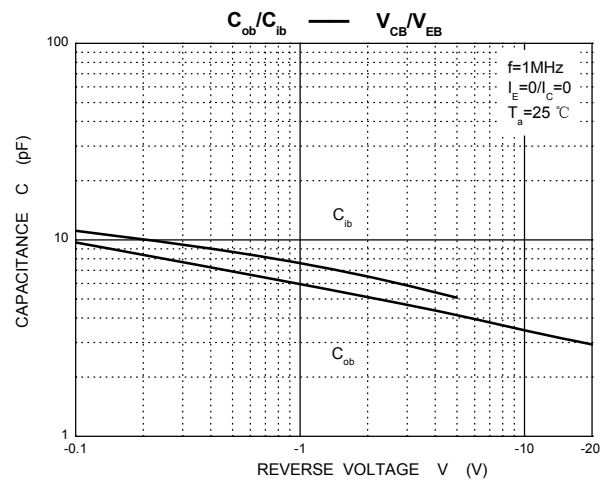
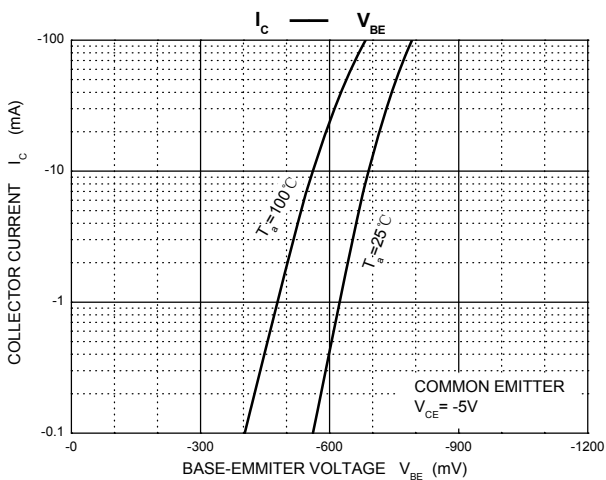
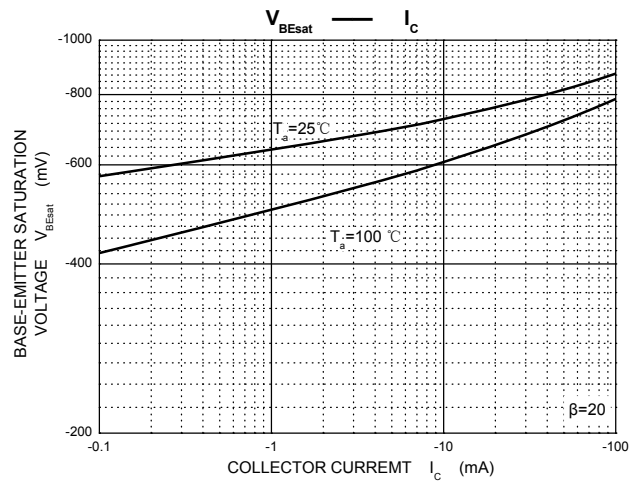
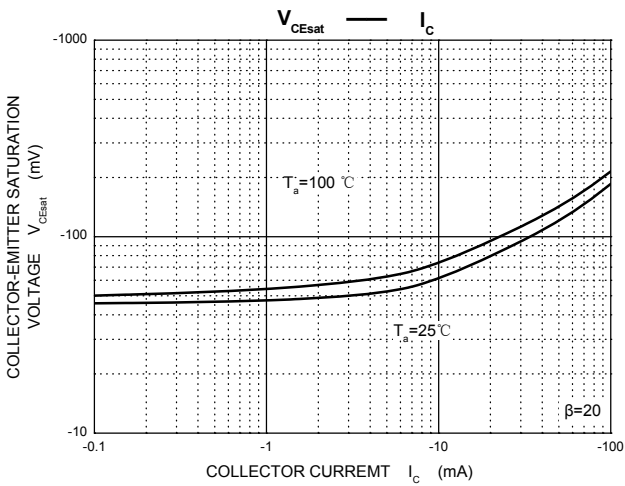
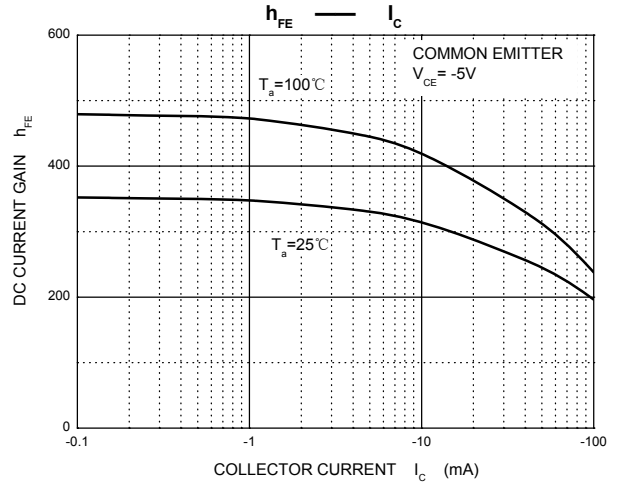
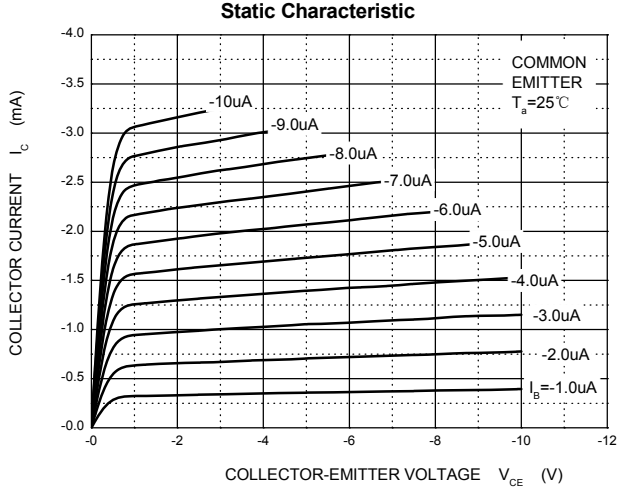
**NPN Ratings and Characteristic Curves**



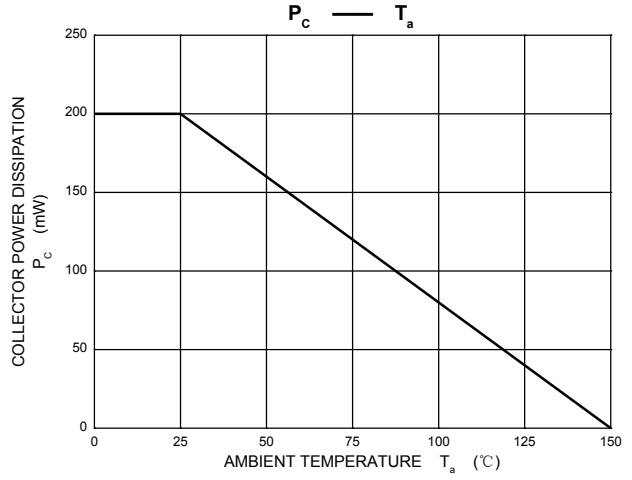
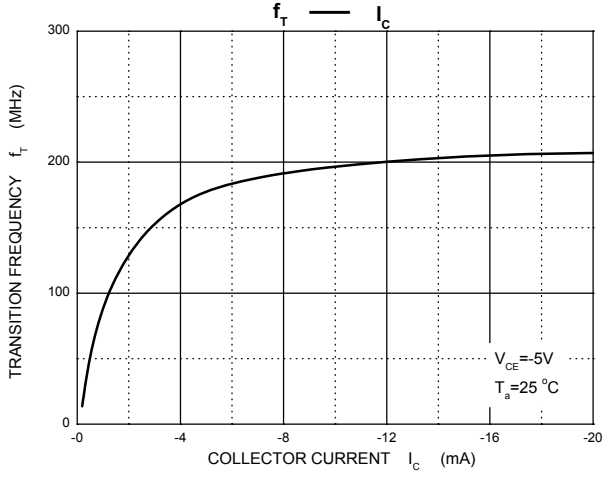
**NPN Ratings and Characteristic Curves**



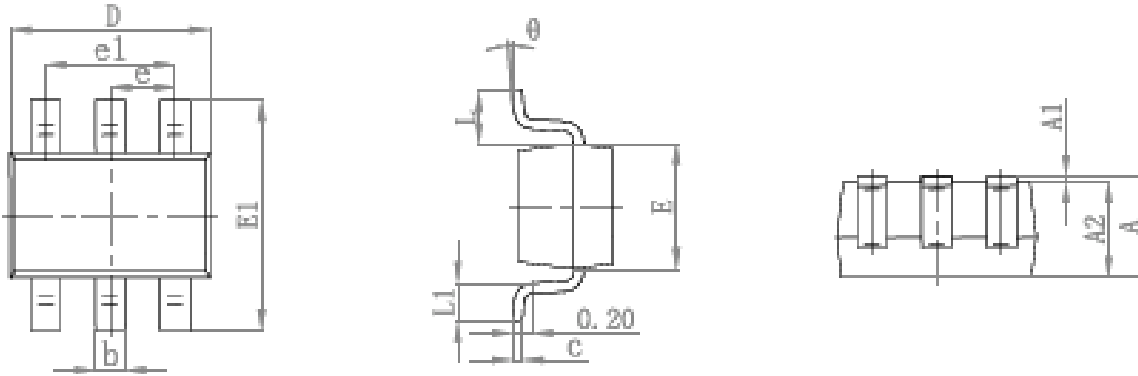
**PNP Ratings and Characteristic Curves**



**PNP Ratings and Characteristic Curves**

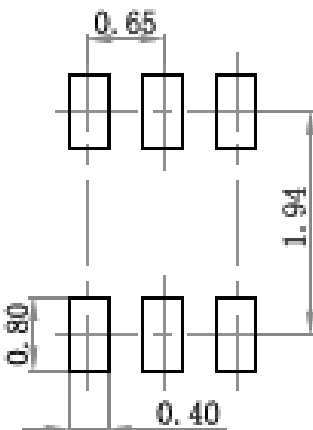


**Package Outline Dimensions**      **SOT-363**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
theta	0°	8°	0°	8°

**Suggested Pad Layout**



Note:  
 1. Controlling dimension: in millimeter;  
 2. General tolerance: +/- 0.05m;  
 3. The pad layout is for reference purposes only.