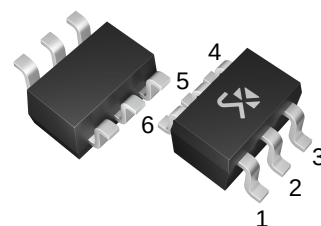
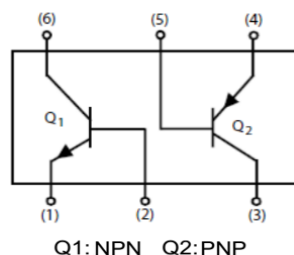


NPN+PNP Silicon Epitaxial Planar Transistor

SOT-363

Features

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



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

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	200	mA
P_C	Collector Power Dissipation	200	mW
$*P_C$	Collector Power Dissipation	350	mW
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55 to +150	$^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	625	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 30\text{V}, I_E = 0$			0.05	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 3\text{V}, I_C = 0$			0.05	μA
DC current gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 0.1\text{mA}$	40			
DC current gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 1\text{mA}$	70			
DC current gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 10\text{mA}$	100		300	
DC current gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 50\text{mA}$	60			
DC current gain	h_{FE}	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$			0.2	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	0.65		0.85	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$			0.95	V
Transition frequency	f_T	$V_{CE} = 20\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$	300			MHz
Collector output capacitance	C_{ob}	$V_{CB} = 5\text{V}, I_E = 0, f = 1\text{MHz}$			4	PF

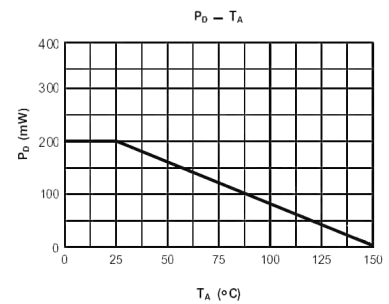
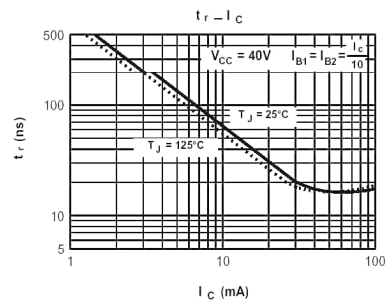
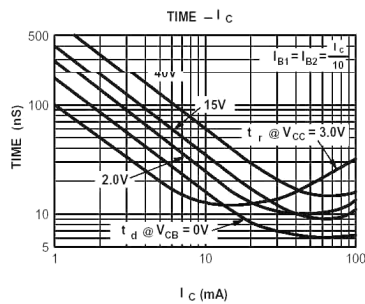
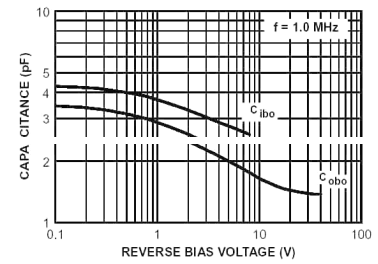
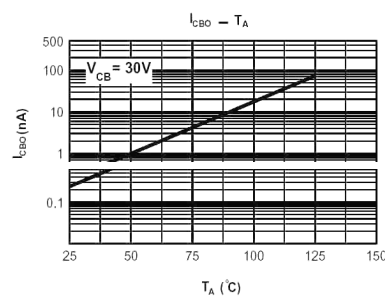
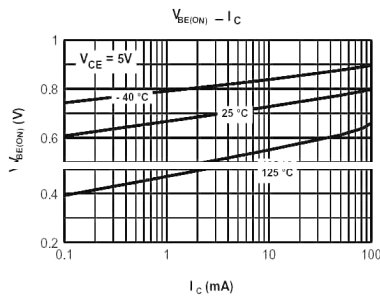
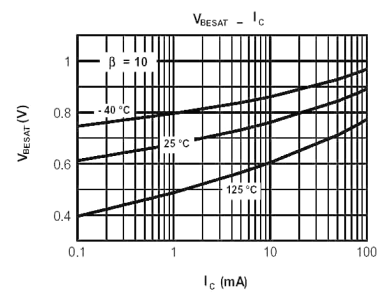
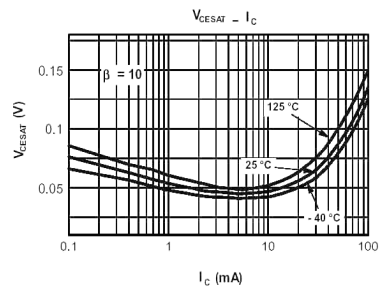
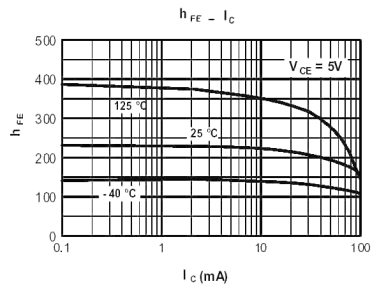
NPN MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-200	mA
P_C	Collector Power Dissipation	300	mW
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	625	$^{\circ}\text{C}/\text{W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55 to +150	$^{\circ}\text{C}$

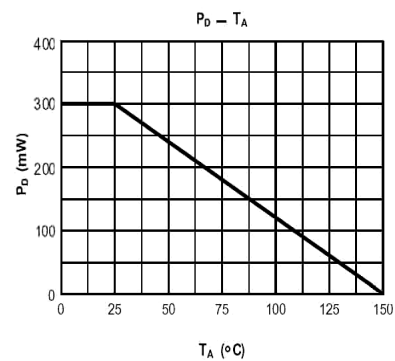
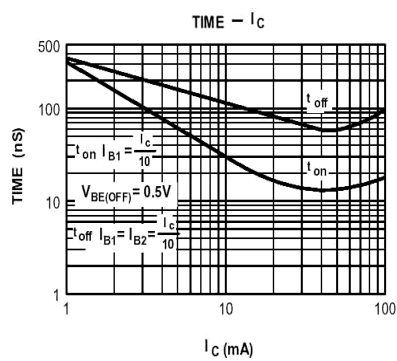
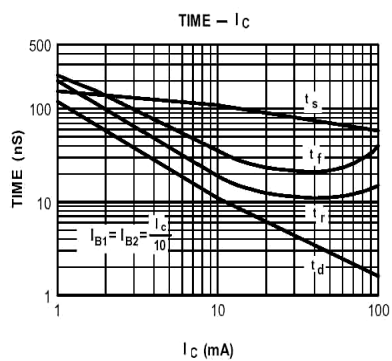
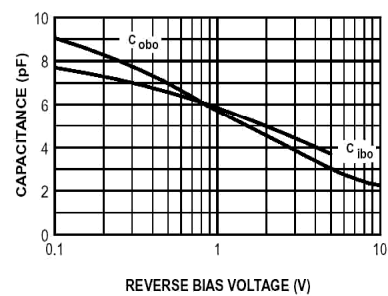
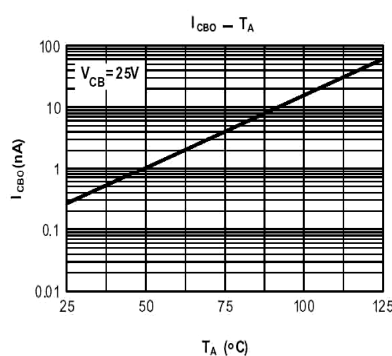
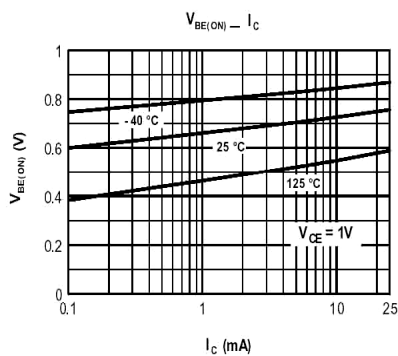
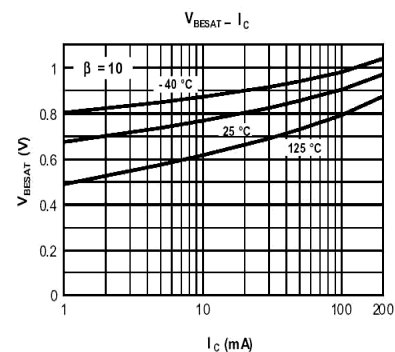
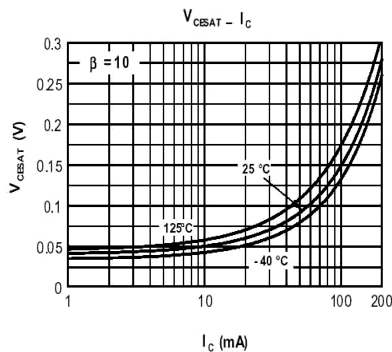
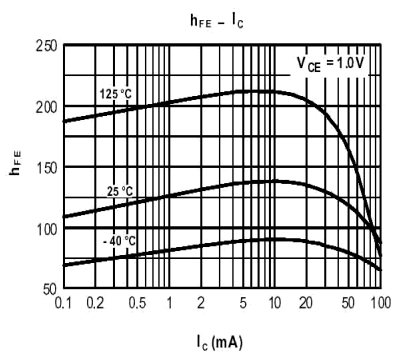
ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10\mu\text{A}$, $I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}$, $I_B = 0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu\text{A}$, $I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -30\text{V}$, $I_E = 0$			-0.05	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -3\text{V}$, $I_C = 0$			-0.05	μA
DC current gain	h_{FE}	$V_{CE} = -1\text{V}$, $I_C = -0.1\text{mA}$	60			
DC current gain	h_{FE}	$V_{CE} = -1\text{V}$, $I_C = -1\text{mA}$	80			
DC current gain	h_{FE}	$V_{CE} = -1\text{V}$, $I_C = -10\text{mA}$	100		300	
DC current gain	h_{FE}	$V_{CE} = -1\text{V}$, $I_C = -50\text{mA}$	60			
DC current gain	h_{FE}	$V_{CE} = -1\text{V}$, $I_C = -100\text{mA}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{mA}$, $I_B = -1\text{mA}$			-0.25	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -50\text{mA}$, $I_B = -5\text{mA}$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{mA}$, $I_B = -1\text{mA}$	-0.65		-0.85	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -50\text{mA}$, $I_B = -5\text{mA}$			-0.95	V
Transition frequency	f_T	$V_{CE} = -20\text{V}$, $I_C = -10\text{mA}$ $f = 100\text{MHz}$	250			MHz
Collector output capacitance	C_{ob}	$V_{CB} = -5\text{V}$, $I_E = 0$, $f = 1\text{MHz}$			4.5	PF

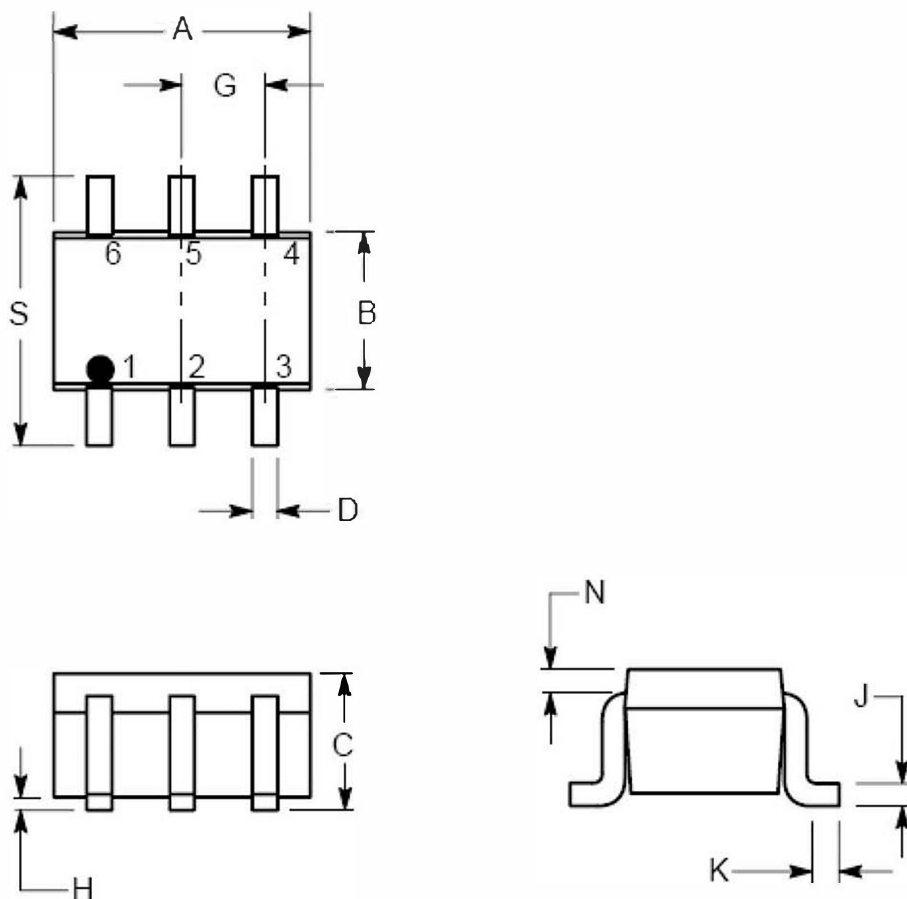
Electrical Characteristic Curve



Electrical Characteristic Curve



SOT-363 Outline Dimension



Symbol	Dimension In Millimeters	
	Min	Max.
A	1.89	2.20
B	1.15	1.35
C	0.80	1.10
D	0.10	0.30
G	0.65 BSC	
H	---	0.10
J	0.10	0.25
K	0.10	0.30
N	0.20 REF	
S	2.00	2.20