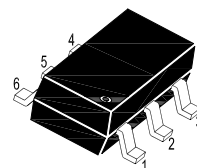
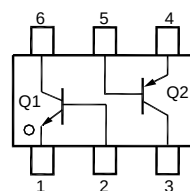


■ NPN / PNP Silicon Epitaxial Planar Transistors



1. Emitter 2. Base 3. Collector
4. Emitter 5. Base 6. Collector

■ Simplified outline(SOT-363)

■ Q1 Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	40	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	600	mA

■ Q2 Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	40	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	600	mA

■ Q1Q2 Maximum Ratings ($T_a = 25^\circ\text{C}$)

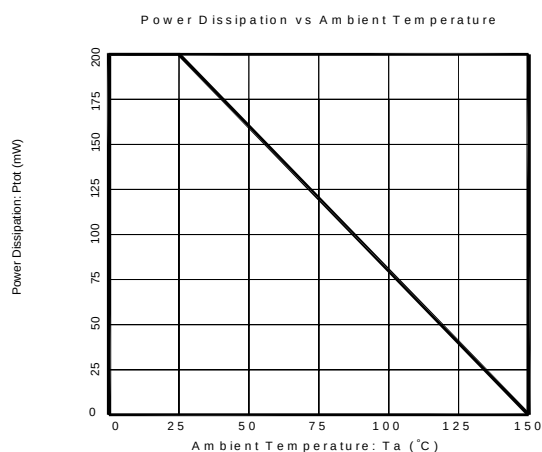
Parameter	Symbol	Value	Unit
Total Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

■ Q1 Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $V_{CE} = 1\text{ V}$, $I_C = 0.1\text{ mA}$ at $V_{CE} = 1\text{ V}$, $I_C = 1\text{ mA}$ at $V_{CE} = 1\text{ V}$, $I_C = 10\text{ mA}$ at $V_{CE} = 1\text{ V}$, $I_C = 150\text{ mA}$ at $V_{CE} = 2\text{ V}$, $I_C = 500\text{ mA}$	h_{FE} h_{FE} h_{FE} h_{FE} h_{FE}	20 40 80 100 40	- - - 300 -	- - - - -
Collector Cutoff Current at $V_{CB} = 35\text{ V}$	I_{CBO}	-	0.1	μA
Base Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	0.1	μA
Collector Base Breakdown Voltage at $I_C = 0.1\text{ mA}$	$V_{(BR)CBO}$	60	-	V
Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at $I_E = 0.1\text{ mA}$	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage at $I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$ at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	V_{CEsat}	- -	0.4 0.75	V
Base Emitter Saturation Voltage at $I_C = 150\text{ mA}$, $I_B = 15\text{ mA}$ at $I_C = 500\text{ mA}$, $I_B = 50\text{ mA}$	V_{BEsat}	0.75 -	0.95 1.2	V
Current Gain Bandwidth Product at $V_{CE} = 10\text{ V}$, $I_C = 20\text{ mA}$, $f = 100\text{ MHz}$	f_T	250	-	MHz
Collector Base Capacitance at $V_{CB} = 5\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$	C_{cb}	-	8	pF

■ Q2 Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $-V_{CE} = 1\text{ V}$, $-I_C = 0.1\text{ mA}$	h_{FE}	30	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 1\text{ mA}$	h_{FE}	60	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 10\text{ mA}$	h_{FE}	100	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 150\text{ mA}$	h_{FE}	100	300	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	h_{FE}	20	-	-
Collector Cutoff Current at $-V_{CB} = 35\text{ V}$	$-I_{CBO}$	-	0.1	μA
Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	0.1	μA
Collector Base Breakdown Voltage at $-I_C = 0.1\text{ mA}$	$-V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at $-I_E = 0.1\text{ mA}$	$-V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{CEsat}$	- -	0.4 0.75	V
Base Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$ at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{BEsat}$	0.75 -	0.95 1.3	V
Current Gain Bandwidth Product at $-V_{CE} = 10\text{ V}$, $-I_C = 20\text{ mA}$, $f = 100\text{ MHz}$	f_T	200	-	MHz
Collector Base Capacitance at $-V_{CB} = 10\text{ V}$, $-I_E = 0$, $f = 1\text{ MHz}$	C_{cb}	-	8.5	pF



Q1(NPN transistor)

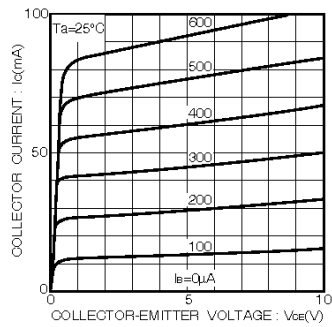


Fig.1 Grounded emitter output characteristics

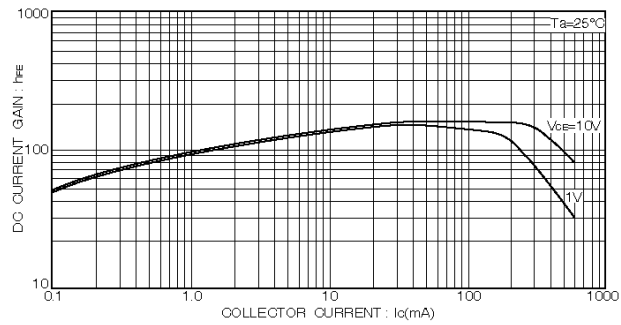


Fig.3 DC current gain vs. collector current(I)

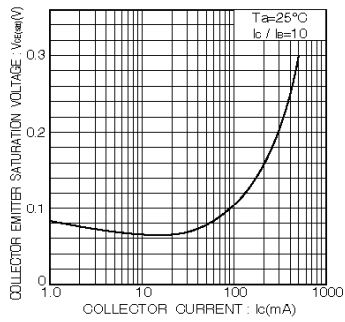


Fig.2 Collector-emitter saturation voltage vs. collector current

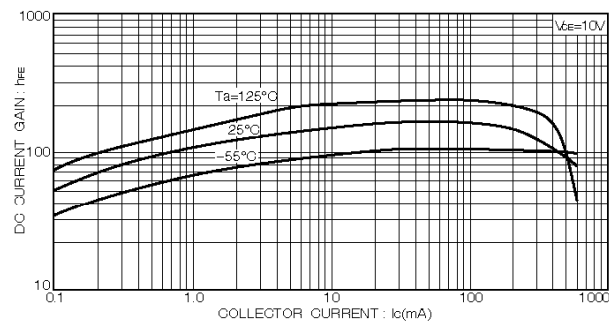


Fig.4 DC current gain vs. collector current(II)

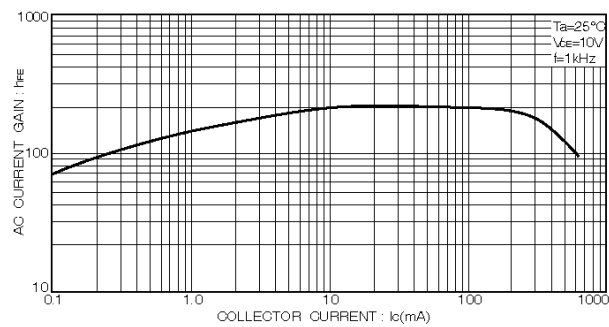


Fig.5 AC current gain vs. collector current

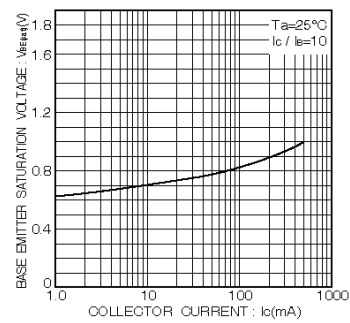


Fig.6 Base-emitter saturation voltage vs. collector current

Q2(PNP transistor)

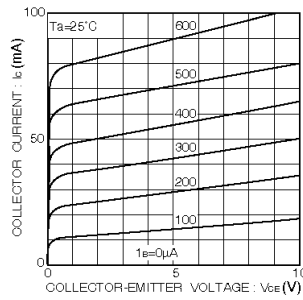


Fig.1 Grounded emitter output characteristics

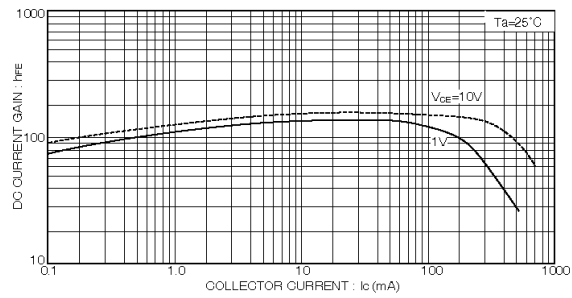


Fig.3 DC current gain vs. collector current (I)

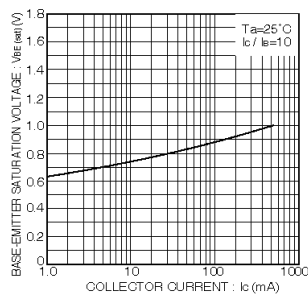


Fig.2 Base-emitter saturation voltage vs. collector current

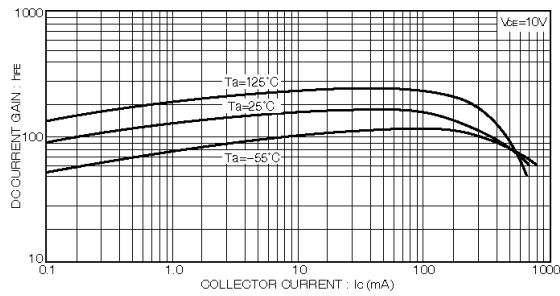


Fig.4 DC current gain vs. collector current (II)

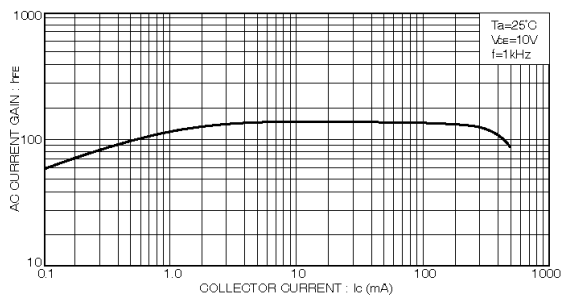


Fig.5 AC current gain vs. collector current

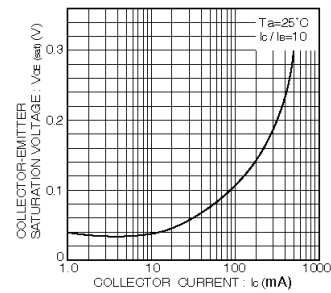
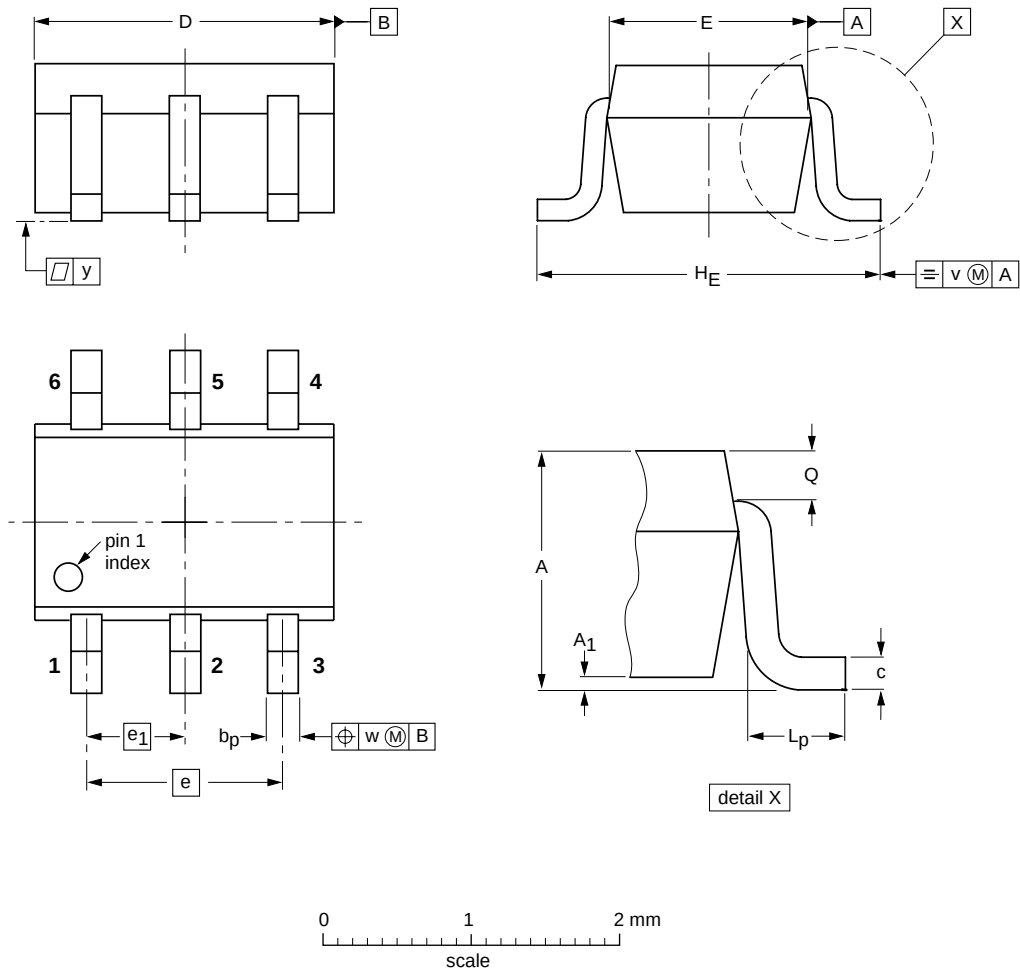


Fig.6 Collector-emitter saturation voltage vs. collector current

Package Outline

SOT-363



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT-363	Tape/Reel, 7" reel	3000	EIA-481-1