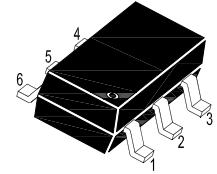
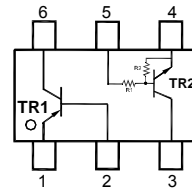


■ **NPN/PNP Silicon Epitaxial Planar Dual Transistor**

■ **Features**

- Power switching circuit in a single package
- Mounting cost and area can be cut in half



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

■ **Simplified outline(SOT-363)**

■ **Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ ) (TR1)**

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CB0}$	15	V
Collector Emitter Voltage	$-V_{CEO}$	12	V
Emitter Base Voltage	$-V_{EBO}$	6	V
Collector Current	$-I_C$	500	mA
Collector Current <sup>1)</sup>	$-I_{CP}$	1	A
Total Power Dissipation	$P_{tot}$	150	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Operating ambient and Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

<sup>1)</sup> Single Pulse  $P_w = 1 \text{ ms}$

■ **Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ ) (TR2)**

Parameter	Symbol	Value	Unit
Supply Voltage	$V_{CC}$	50	V
Input Voltage	$V_{IN}$	- 10 to + 40	V
Collector Current <sup>1)</sup>	$I_C$	100	mA
Total Power Dissipation	$P_{tot}$	150	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Operating ambient and Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

<sup>1)</sup> Characteristics of built in Transistor.

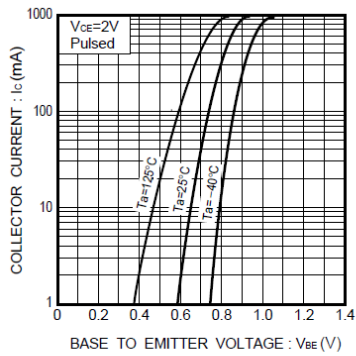
**■ Characteristics at  $T_a = 25^\circ\text{C}$  (TR1)**

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE} = 2\text{ V}$ , $-I_C = 10\text{ mA}$	$h_{FE}$	270	-	680	-
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-BV_{CEO}$	12	-	-	V
Collector Base Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$	$-BV_{CBO}$	15	-	-	V
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$	$-BV_{EBO}$	6	-	-	V
Emitter Cutoff Current at $-V_{CB} = 15\text{ V}$	$-I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current at $-V_{EB} = 6\text{ V}$	$I_{EBO}$	-	-	100	nA
Collector Emitter Saturation Voltage at $-I_C = 200\text{ mA}$ , $-I_B = 10\text{ mA}$	$V_{CEsat}$	-	-	250	mV
Gain Bandwidth Product at $-V_{CE} = 2\text{ V}$ , $I_E = 10\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	260	-	MHz
Collector output capacitance at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$	Cob	-	6.5	-	pF

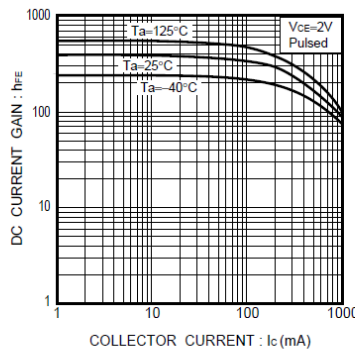
**■ Characteristics at  $T_a = 25^\circ\text{C}$  (TR2)**

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$ , $I_C = 5\text{ mA}$	$h_{FE}$	68	-	-	-
Input Current at $V_{EB} = 5\text{ V}$	$I_{EB}$	-	-	180	$\mu\text{A}$
Output Current at $V_{CB} = 50\text{ V}$	$I_{CBO}$	-	-	50	nA
Input Voltage (OFF) at $V_{CC} = 5\text{ V}$ , $I_C = 100\text{ }\mu\text{A}$	$V_{I(OFF)}$	-	-	0.5	V
Input Voltage (ON) at $V_O = 0.3\text{ V}$ , $I_O = 2\text{ mA}$	$V_{I(ON)}$	3	-	-	V
Output Voltage (ON) at $V_O = 10\text{ V}$ , $I_I = 0.5\text{ mA}$	$V_{O(ON)}$	-	-	0.3	V
Gain Bandwidth Product at $V_{CE} = 10\text{ V}$ , $-I_E = 5\text{ mA}$ , $f = 100\text{ MHz}$	$f_T$	-	250	-	MHz
Input Resistance	$R_1$	32.9	47	61.1	K $\Omega$
Resistance Ratio	$R_1/R_2$	0.8	1	1.2	-

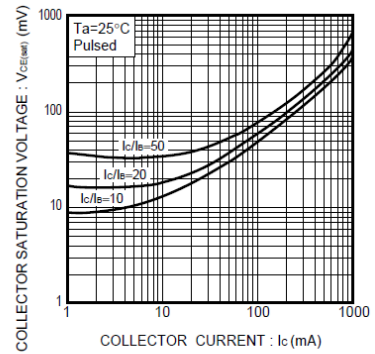
**TR1**



Grounded emitter propagation characteristics

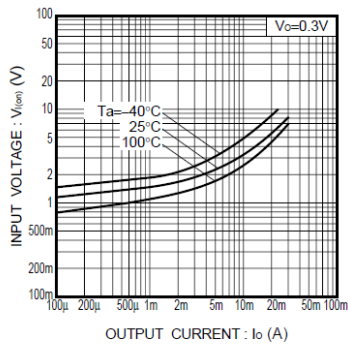


DC current gain vs. collector current

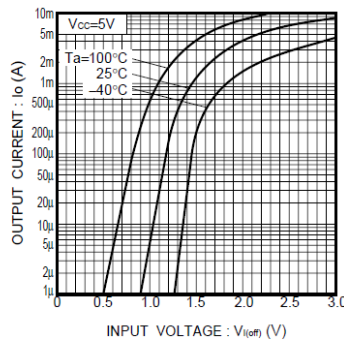


Collector-emitter saturation voltage vs. collector current (I)

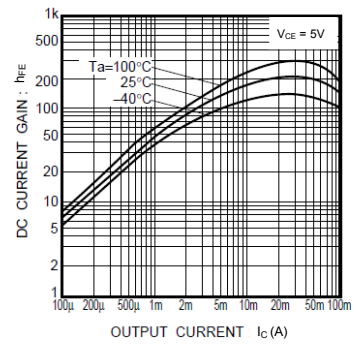
**TR2**



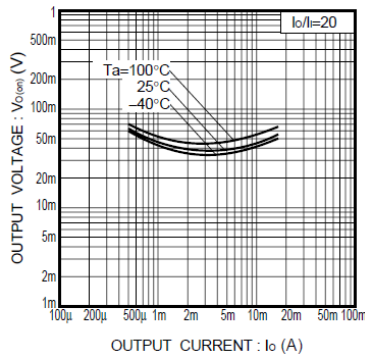
Input voltage vs. output current (ON characteristics)



Output current vs. input voltage (OFF characteristics)



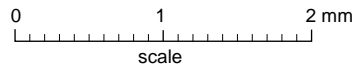
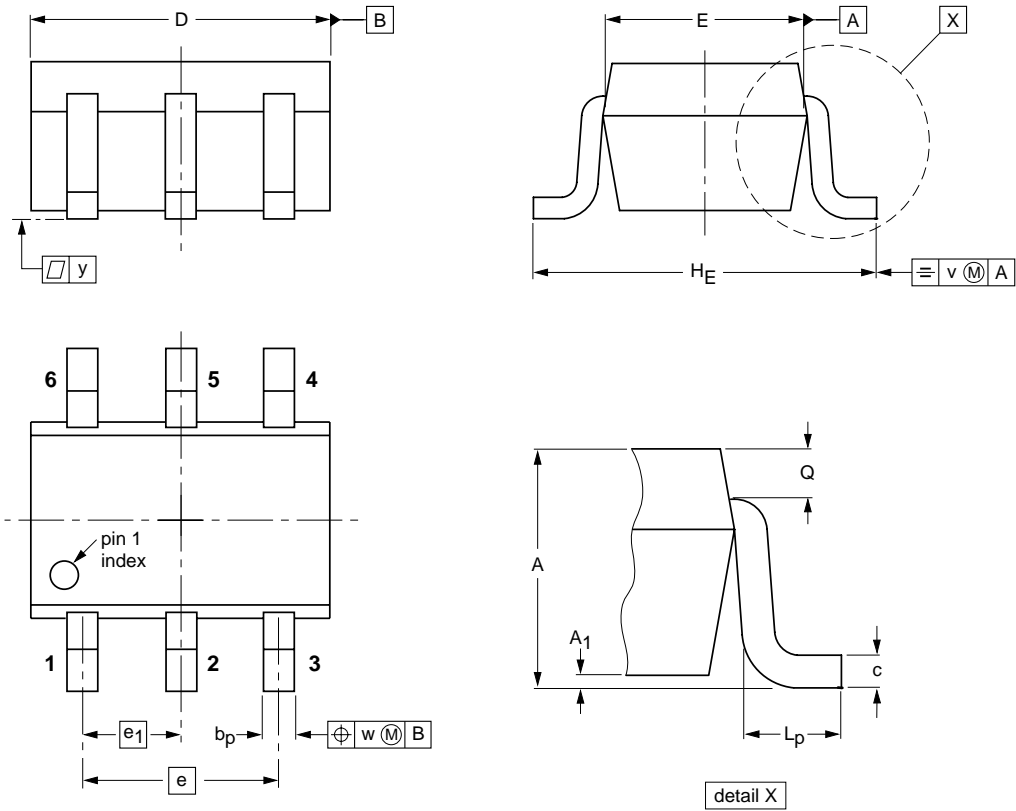
DC current gain vs. output current



Output voltage vs. output current

Package Outline

SOT-363



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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