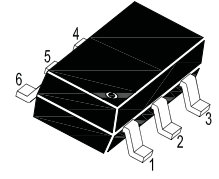
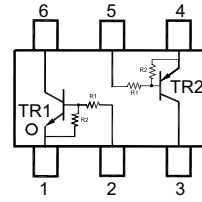


■ **NPN/PNP Silicon Epitaxial Planar Digital Transistor**

for switching and interface circuit and drivecircuit applications

■ **Features**

- Built in bias resistor NPN and PNP
- Simplification of circuit design
- Reduces number of components and board space



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

■ **Simplified outline(SOT-363)**

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	50	V
Collector Emitter Voltage	V_{CEO}	50	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	100	mA

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	50	V
Collector Emitter Voltage	$-V_{CEO}$	50	V
Emitter Base Voltage	$-V_{EBO}$	6	V
Collector Current	$-I_C$	100	mA

■ **Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$ (TR1 and TR2)**

Parameter	Symbol	Value	Unit
Total Power Dissipation $T_a = 115^\circ\text{C}$	P_{tot}	250	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 5\text{ V}$, $I_C = 5\text{ mA}$	h_{FE}	70	-	-	-
Collector Base Cutoff Current at $V_{CB} = 40\text{ V}$	I_{CBO}	-	-	100	nA
Emitter Base Cutoff Current at $V_{EB} = 5\text{ V}$	I_{EBO}	-	-	164	μA
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$	V_{CEsat}	-	-	0.3	V
Input Voltage (OFF) at $V_{CE} = 5\text{ V}$, $I_C = 100\text{ }\mu\text{A}$	$V_{I(OFF)}$	0.4	-	0.8	V
Input Voltage (ON) at $V_{CE} = 0.3\text{ V}$, $I_C = 2\text{ mA}$	$V_{I(ON)}$	0.5	-	1.1	V
Gain Bandwidth Product at $V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$, $f = 100\text{ MHz}$	f_T	-	170	-	MHz
Collector output capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	Cob	-	2	-	pF

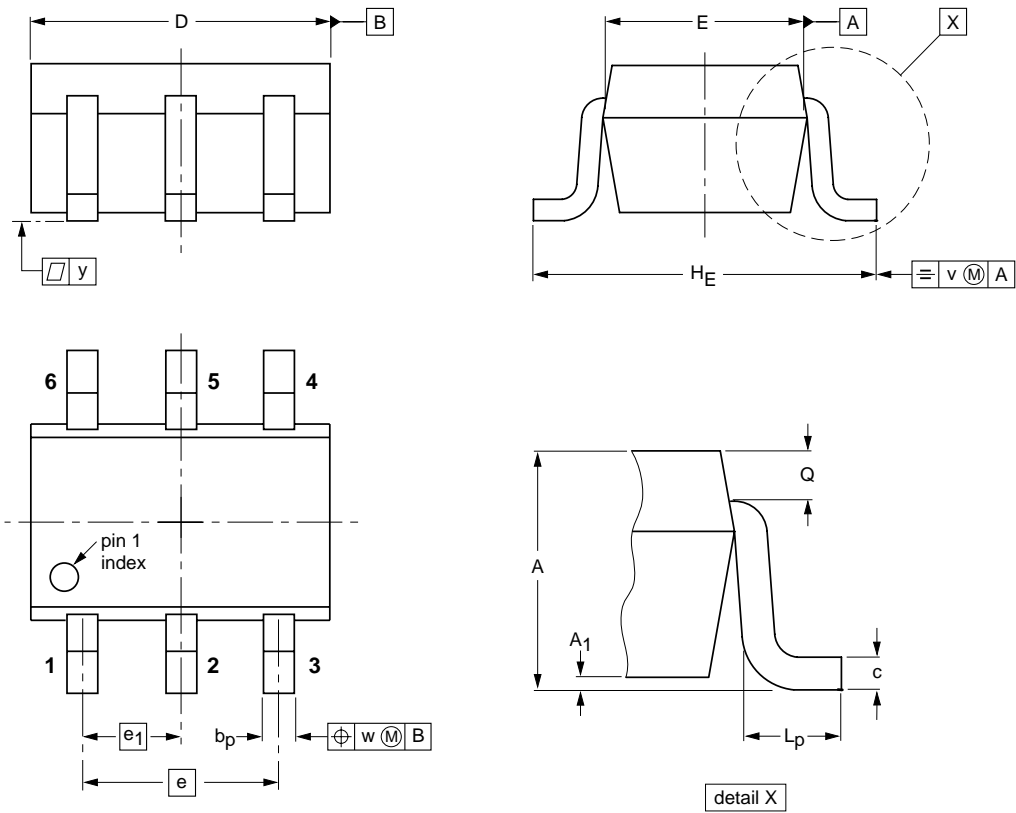
■ Characteristics at $T_a = 25^\circ\text{C}$ (TR2:PNP)

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE} = 5\text{ V}$, $-I_C = 5\text{ mA}$	h_{FE}	70	-	-	-
Collector Base Cutoff Current at $-V_{CB} = 40\text{ V}$	$-I_{CBO}$	-	-	100	nA
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	-	164	μA
Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 0.5\text{ mA}$	$-V_{CEsat}$	-	-	0.3	V
Input Voltage (OFF) at $-V_{CE} = 5\text{ V}$, $-I_C = 100\text{ }\mu\text{A}$	$-V_{I(OFF)}$	0.4	-	0.8	V
Input Voltage (ON) at $-V_{CE} = 0.3\text{ V}$, $-I_C = 2\text{ mA}$	$-V_{I(ON)}$	0.5	-	1.1	V
Gain Bandwidth Product at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ mA}$, $f = 100\text{ MHz}$	f_T	-	170	-	MHz
Collector output capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	Cob	-	2	-	pF

■ Characteristics at $T_a = 25^\circ\text{C}$ (TR1 and TR2)

Input Resistance	R_1	1.5	2.2	2.9	K Ω
Resistance Ratio	R_1/R_2	0.042	0.047	0.052	-

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