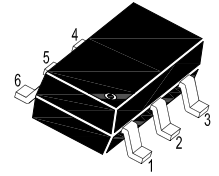
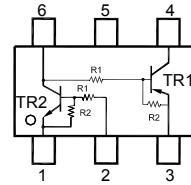


■ **NPN/PNP Silicon Epitaxial Planar Digital Transistor**

for switching and interface circuit and drivecircuit applications



1. Emitter 2. Base 3. Collector
4. Emitter 5. NC 6. Collector2, Base1

■ **Simplified outline(SOT-363)**

■ **Absolute Maximum Ratings (T_a = 25°C)**

Parameter	Symbol	Value	Unit
Collector Base Voltage	V _{CBO}	50	V
Collector Emitter Voltage	V _{CEO}	50	V
Collector Current	I _C	100	mA
Total Power Dissipation ¹⁾	P _{tot}	357	mW
Thermal Resistance from Juntion to Ambient ¹⁾	R _{θJA}	350	°C/W
Operating Junction Temperature Range	T _J	- 55 to + 150	°C
Storage Temperature Range	T _{stg}	- 55 to + 150	°C

1) FR-4 @ Minimum Pad

■ **Characteristics at T_a = 25°C (TR1: PNP)**

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at -V _{CE} = 10 V, -I _C = 5 mA	h _{FE}	20	-	-	-
Collector Base Cutoff Current at -V _{CB} = 50 V	-I _{CBO}	-	-	100	nA
Collector Emitter Cutoff Current at -V _{CE} = 50 V	-I _{CEO}	-	-	500	nA
Emitter Base Cutoff Current at -V _{EB} = 6 V	-I _{EBO}	-	-	1	mA
Collector Base Breakdown Voltage at -I _C = 10 μA	-V _{(BR)CBO}	50	-	-	V
Collector Emitter Breakdown Voltage at -I _C = 2 mA	-V _{(BR)CEO}	50	-	-	V
Collector Emitter Saturation Voltage at -I _C = 10 mA, -I _B = 0.3 mA	-V _{CE(sat)}	-	-	0.25	V
Output Voltage (On) at -V _{CC} = 5 V, -V _B = 2.5 V, R _L = 1 KΩ	-V _{OL}	-	-	0.2	V
Output Voltage (Off) at -V _{CC} = 5 V, -V _B = 0.5 V, R _L = 1 KΩ	-V _{OH}	4.9	-	-	V
Input Resistance	R ₁	3.3	4.7	6.1	KΩ
Resistance Ratio	R ₁ /R ₂	0.38	0.47	0.56	-

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $V_{CE} = 10\text{ V}$, $I_C = 5\text{ mA}$	h_{FE}	80	-	-	-
Collector Base Cutoff Current at $V_{CB} = 50\text{ V}$	I_{CBO}	-	-	100	nA
Collector Emitter Cutoff Current at $V_{CE} = 50\text{ V}$	I_{CEO}	-	-	500	nA
Emitter Base Cutoff Current at $V_{EB} = 6\text{ V}$	I_{EBO}	-	-	0.1	mA
Collector Base Breakdown Voltage at $I_C = 10\ \mu\text{A}$	$V_{(BR)CBO}$	50	-	-	V
Collector Emitter Breakdown Voltage at $I_C = 2\text{ mA}$	$V_{(BR)CEO}$	50	-	-	V
Collector Emitter Saturation Voltage at $I_C = 10\text{ mA}$, $I_B = 0.3\text{ mA}$	$V_{CE(sat)}$	-	-	0.25	V
Output Voltage (On) at $V_{CC} = 5\text{ V}$, $V_B = 2.5\text{ V}$, $R_L = 1\text{ K}\Omega$	V_{OL}	-	-	0.2	V
Output Voltage (Off) at $V_{CC} = 5\text{ V}$, $V_B = 0.5\text{ V}$, $R_L = 1\text{ K}\Omega$	V_{OH}	4.9	-	-	V
Input Resistance	R_1	33	47	61	$\text{K}\Omega$
Resistance Ratio	R_1/R_2	0.8	1	1.2	-

TR1

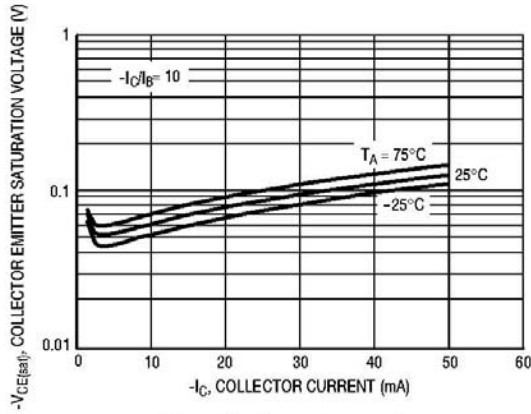


Figure 1. $-V_{CE(sat)}$ versus $-I_C$

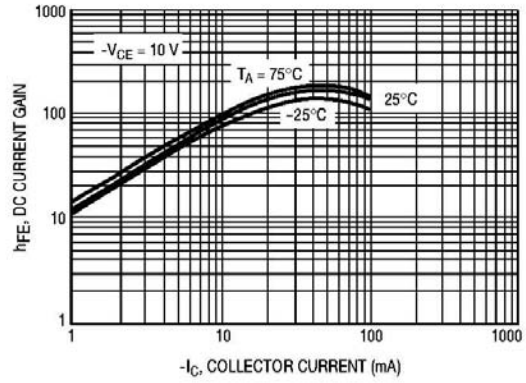


Figure 2. DC Current Gain

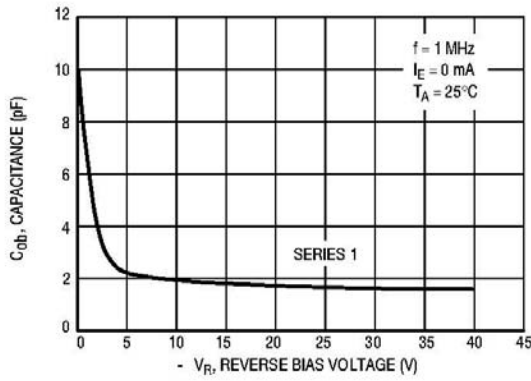


Figure 3. Output Capacitance

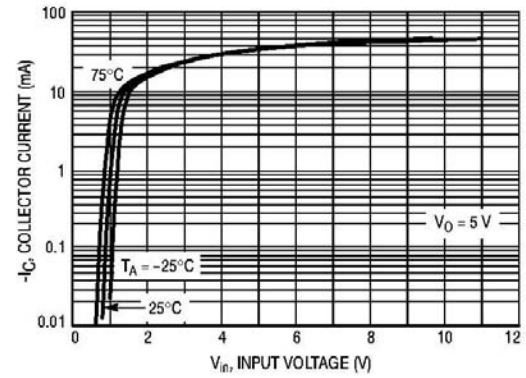


Figure 4. Output Current versus Input Voltage

TR2

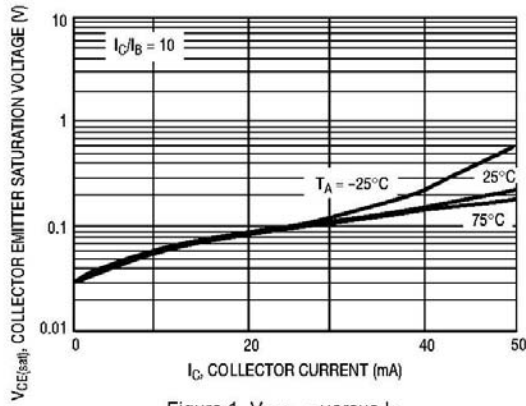


Figure 1. $V_{CE(sat)}$ versus I_C

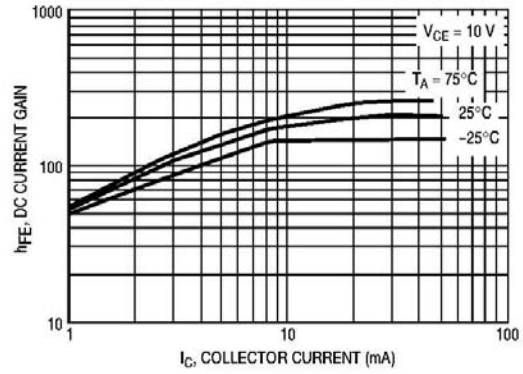


Figure 2. DC Current Gain

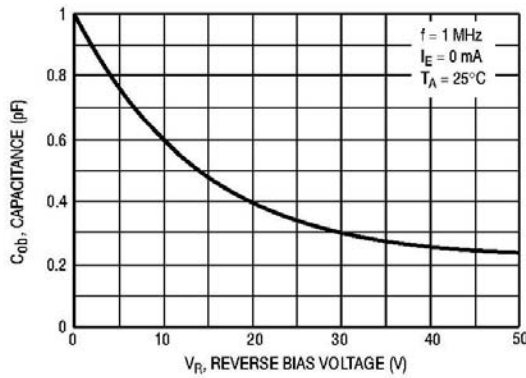


Figure 3. Output Capacitance

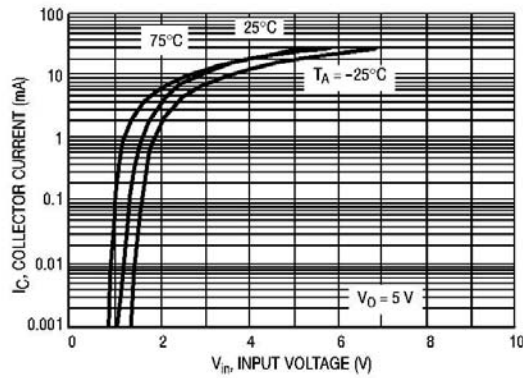
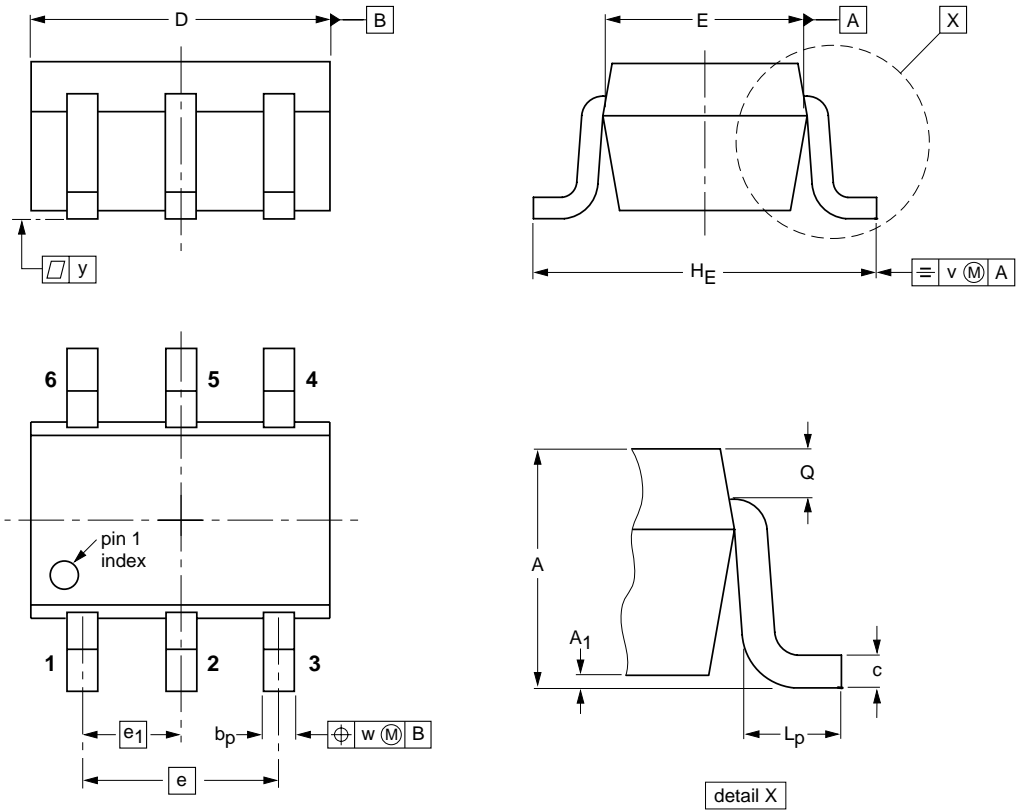


Figure 4. Output Current versus Input Voltage

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