

Bias Resistor Transistors

NPN Silicon Surface Mount Transistors with Monolithic Bias Resistor Network

FEATURES

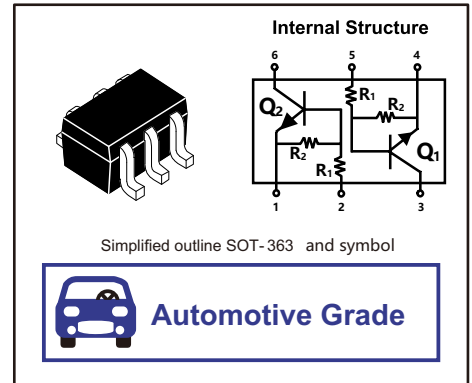
- Reduces board space
- Simplifies Circuit Design
- Reduces Board Space and Component Count
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: SOT-363
- $R_1 = 10K\Omega$ (Typ) , $R_2 = 47K\Omega$ (Typ)

PINNING

PIN	DESCRIPTION
2,5	BASE
1,4	EMITTER
3,6	COLLECTOR



MAXIMUM RATINGS (Ta =25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Output current	I_c	100	mA
Power dissipation	P_D	300	mW
Thermal Resistance – Junction-to-Ambient ₍₁₎	R_{thJA}	417	°C/W
Junction temperature	T_J	-55~ +150	°C
Range of storage temperature	T_{stg}	-55~ +150	°C

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CB0}$	$I_c = 10\mu A$, $I_E = 0$	50			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_c = 2mA$, $I_B = 0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1mA$, $I_c = 0$	6			V
Collector-Base Cut off Current	I_{CB0}	$V_{CB} = 50V$, $I_E = 0$			100	nA
Collector-Emitter Cut off Current	I_{CEO}	$V_{CE} = 50V$, $I_B = 0$			0.5	uA
Emitter-Base Cut off Current	I_{EBO}	$V_{EB} = 5V$, $I_c = 0$			0.2	mA
DC Current Gain	h_{FE}	$V_{CE} = 10V$, $I_c = 5mA$	80	140		
Output Voltage (on)	V_{OL}	$V_{CE} = 5.0V$, $V_{BE} = 2.5V$, $R_L = 1.0K\Omega$			0.2	V
Output Voltage (on)	V_{OH}	$V_{CE} = 5.0V$, $V_{BE} = 0.25V$, $R_L = 1.0K\Omega$	4.9			V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c = 10mA$, $I_B = 0.3mA$			0.25	V
Input Voltage(off)	$V_{I(off)}$	$V_{CE} = 5V$, $I_c = 100\mu A$	0.5			V
Input Voltage(on)	$V_{I(on)}$	$V_{CE} = 0.3V$, $I_c = 10mA$			1.4	V
Input resistance	R_1		7.0	10.0	13.0	K Ω
Input resistance	R_2		32.9	47.0	61.1	K Ω
Resistance ratio	R_2/ R_1		3.8	4.7	5.6	



NPN-Typical Performance Characteristics

Fig 1. VCE(sat) versus IC

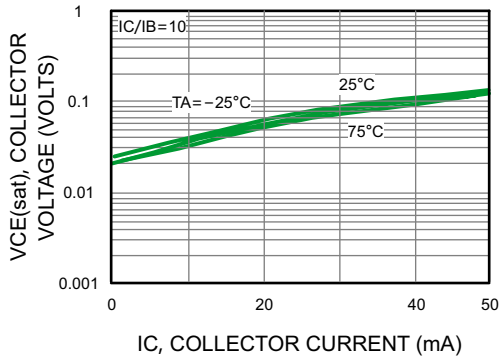


Fig 2. DC Current Gain

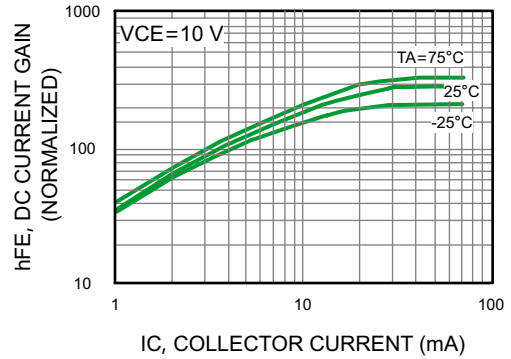


Fig 3. Output Current versus Input Voltage

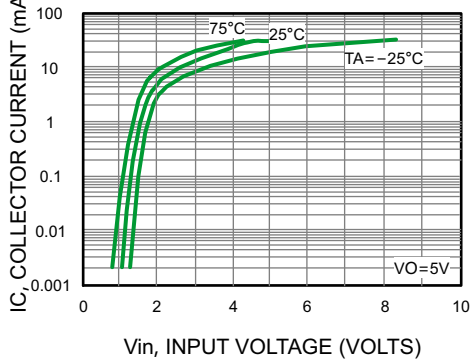


Fig 4. Output Capacitance

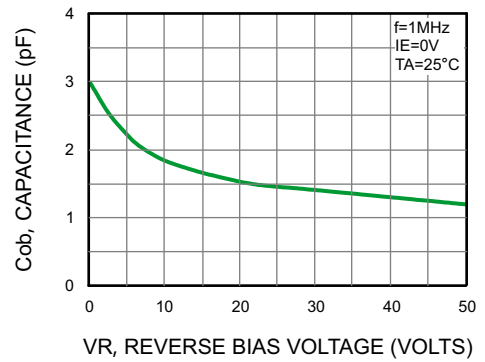
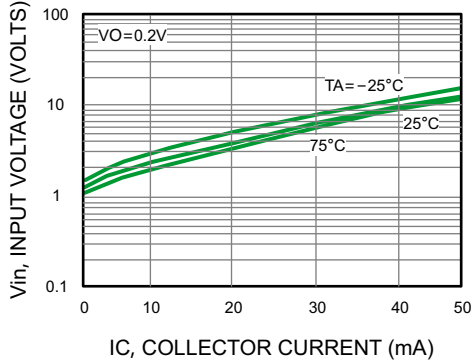
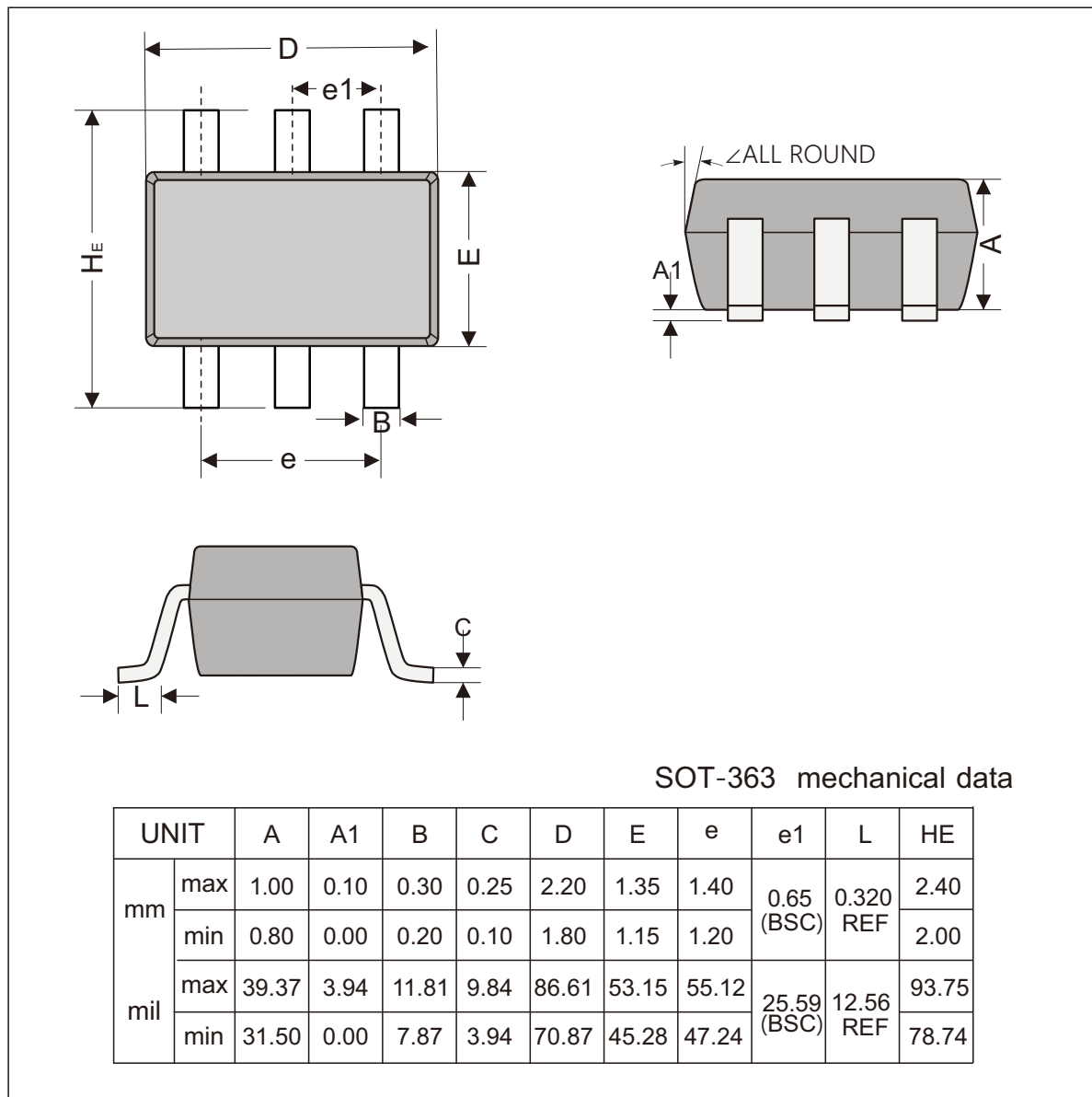


Figure 5. Input Voltage versus Output Current

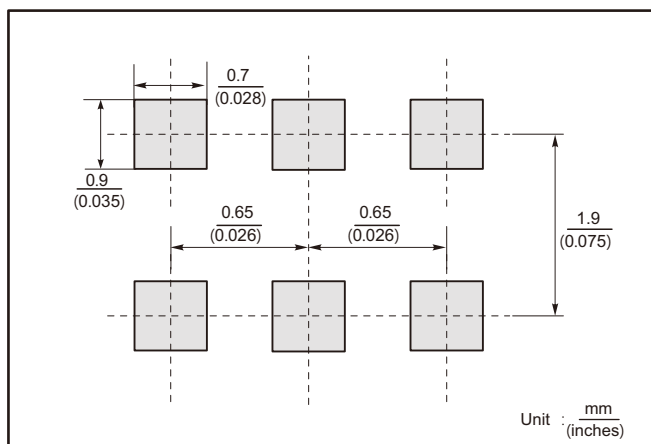




SOT-363 Package Outline Dimensions



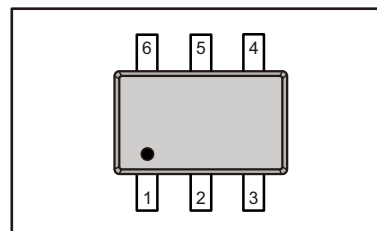
The recommended mounting pad size



Marking

Type number	Marking code
JDTC214YWH	14Y

Pin Point





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