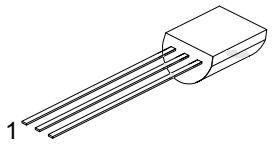
X1049A

NPN SILICON TRANSISTOR

HIGH GAIN TRANSISTOR



TO-92

*Pb-free plating product number: X1049AL

■ FEATURES

* V_{CEV} = 80V
* High Gain
* 20 Amps pulse current

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
X1049A-T92-B	X1049AL-T92-B	TO-92	E	B	C	Tape Box
X1049A-T92-K	X1049AL-T92-K	TO-92	E	B	C	Bulk

X1049AL-T92-B

(1)Packing Type
(2)Package Type
(3)Lead Plating

(1) B: Tape Box, K: Bulk
(2) T92: TO-92
(3) L: Lead Free Plating, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATING (Ta=25℃)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	80	V
Collector-Emitter Voltage		V_{CEO}	25	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	4	A
	Pulse		20	A
Base Current		I_B	500	mA
Power Dissipation		P_D	1	W
Junction Temperature		T_J	125	℃
Operating Temperature		T_{OPR}	-20 ~ +85	℃
Storage Temperature		T_{STG}	-40 ~ +150	℃

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

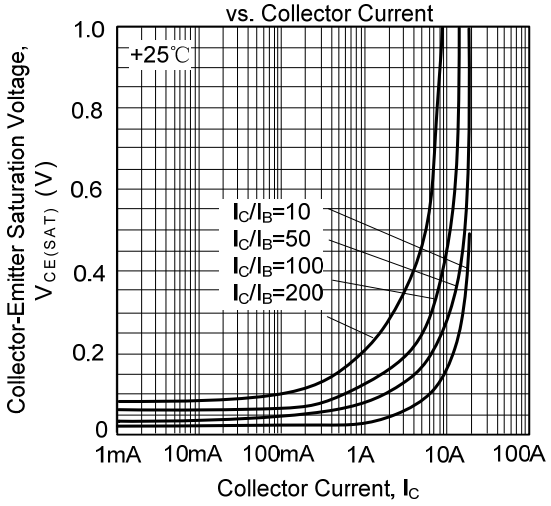
■ ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V_{CBO}	I_C=100μA	80	120		V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=10mA	25	35		V
Collector-Emitter Breakdown Voltage	V_{CES}	I_C=100μA	80	120		V
Collector-Emitter Breakdown Voltage	V_{CEV}	I_C=100μA, V_{EB}=1V	80	120		V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=100μA	5	8.75		V
Collector Cut-Off Current	I_{CBO}	V_{CB}=50V		0.3	10	nA
Emitter Cut-Off Current	I_{EBO}	V_{EB}=4V		0.3	10	nA
Collector Emitter Cut-Off Current	I_{CES}	V_{CES}=50V		0.3	10	nA
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	I_C=0.5A, I_B=10mA I_C=1A, I_B=10mA I_C=2A, I_B=10mA I_C=4A, I_B=50mA		30 60 125 155	70 130 280 400	mV
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	I_C=4A, I_B=50mA		890	980	mV
Base-Emitter Turn-On Voltage (Note)	$V_{BE(ON)}$	I_C=4A, V_{CE}=2V		820	920	mV
DC Current Gain (Note)	h_{FE}	I_C=10mA, V_{CE}=2V	250	430		
		I_C=0.5A, V_{CE}=2V	300	450		
		I_C=1A, V_{CE}=2V	300	450	1200	
		I_C=4A, V_{CE}=2V	200	350		
		I_C=20A, V_{CE}=2V	7			
Transition Frequency	f_T	I_C=50mA, V_{CE}=10V, f=50MHz		180		MHz
Output Capacitance	C_{obo}	V_{CB}=10V, f=1MHz		45	60	pF
Turn-On Time	t_{ON}	I_C=4A, I_B=40mA, V_{CC}=10V		125		ns
Turn-Off Time	t_{OFF}	I_C=4A, I_B=±40mA, V_{CC}=10V		380		ns

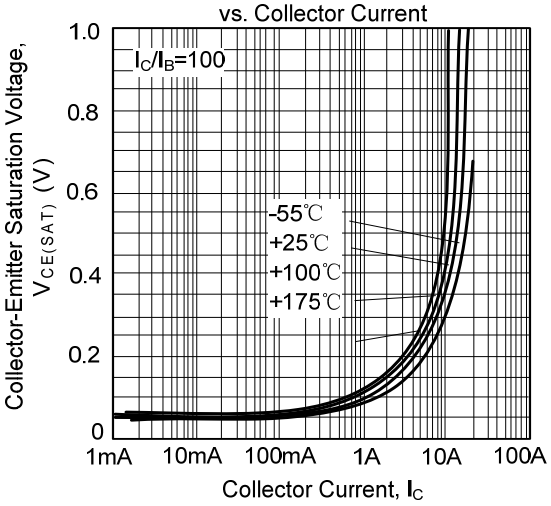
Note: Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%

■ TYPICAL CHARACTERISTICS

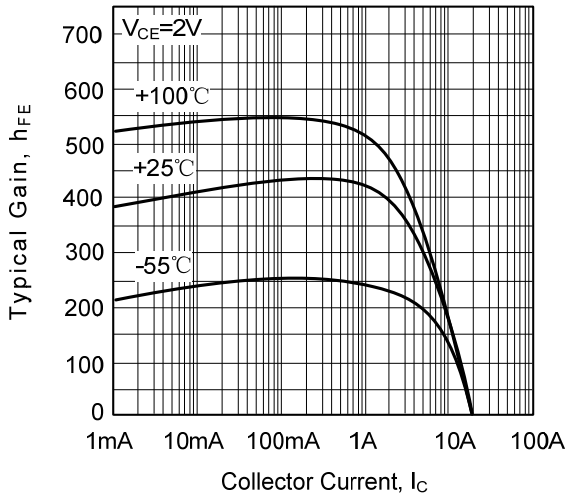
Collector-Emitter Saturation Voltage vs. Collector Current



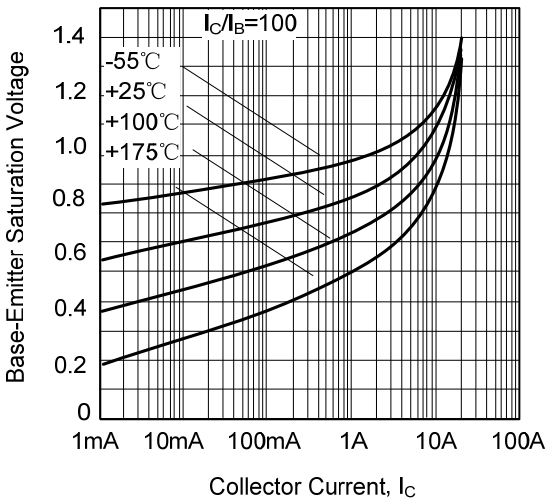
Collector-Emitter Saturation Voltage vs. Collector Current



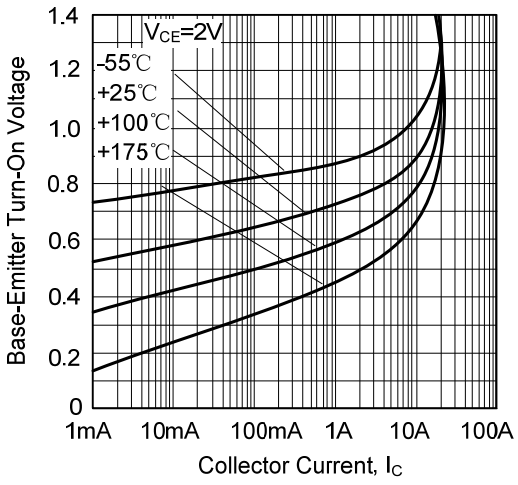
DC Current Gain vs. Collector Current



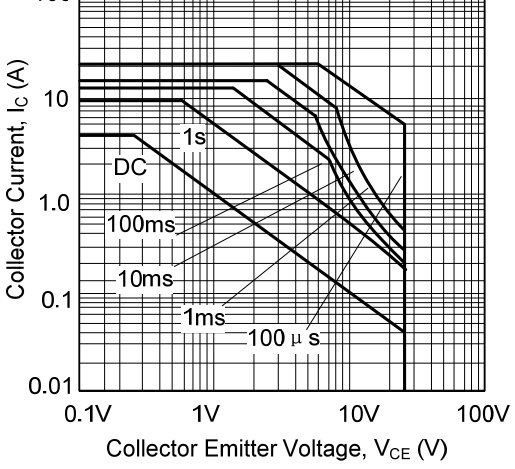
Base-Emitter Saturation Voltage vs. Collector Current



Base-Emitter Turn-On Voltage vs. Collector Current



Safe Operating Area



■ TYPICAL CHARACTERISTICS