



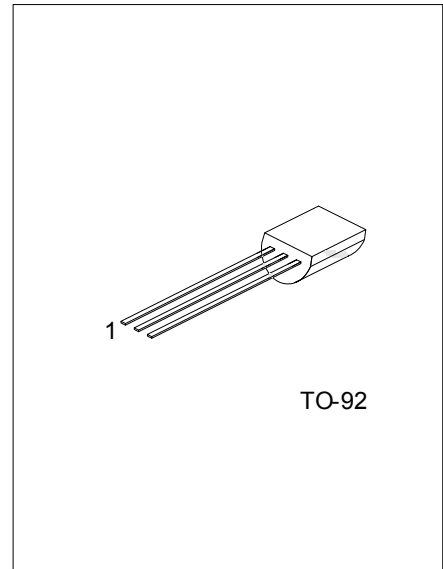
X1049A

NPN SILICON TRANSISTOR

HIGH GAIN TRANSISTOR

■ FEATURES

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



*Pb-free plating product number: X1049AL

■ 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

<p>X1049AL-T92-B</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) B: Tape Box, K: Bulk (2) T92: TO-92 (3) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATING (Ta=25°C)

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	4	A
	Pulse	20	A
Base Current	I_B	500	mA
Power Dissipation	P_D	1	W
Junction Temperature	T_J	125	°C
Operating Temperature	T_{OPR}	-20 ~ +85	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

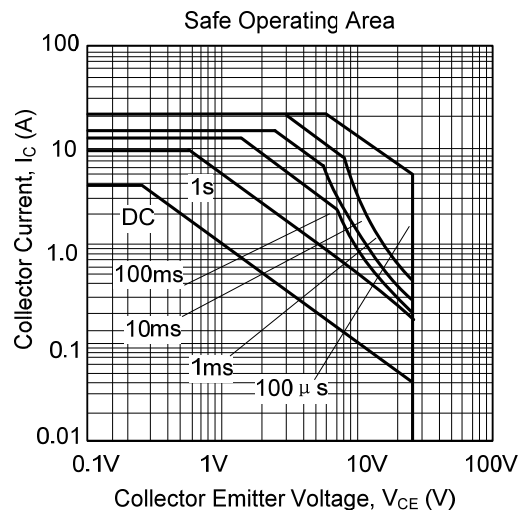
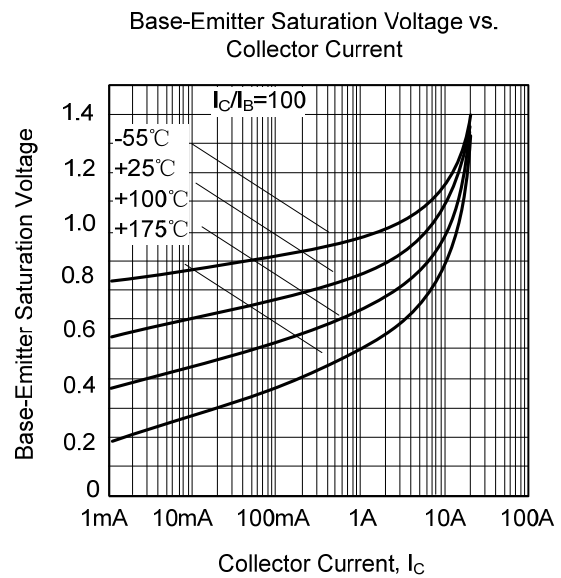
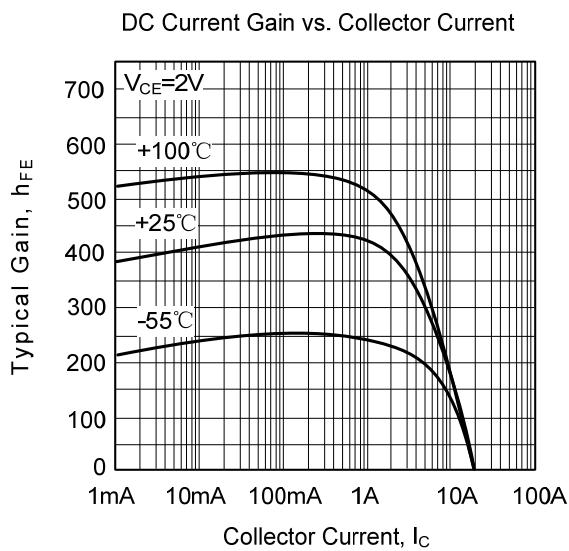
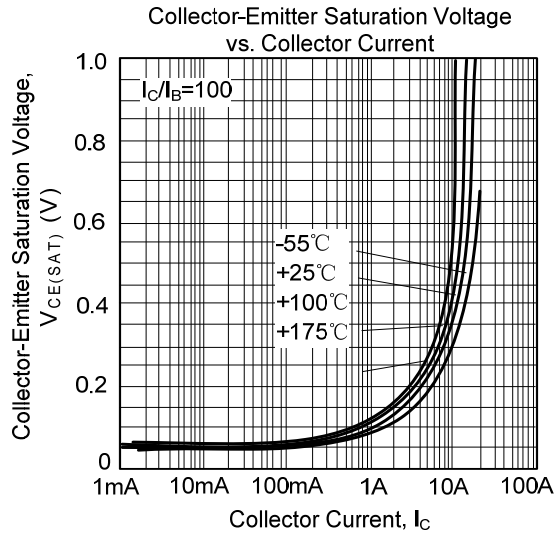
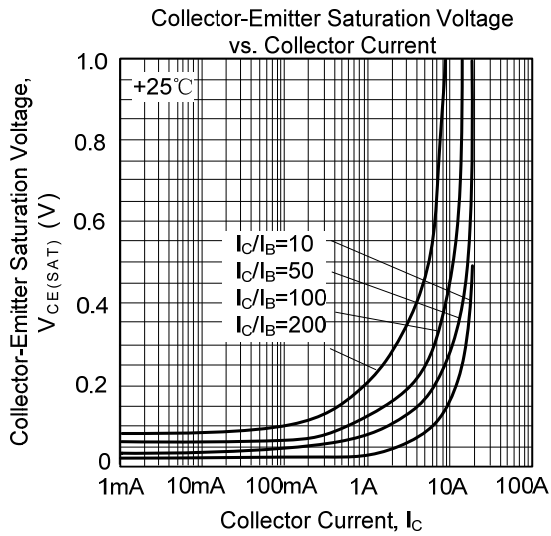
Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

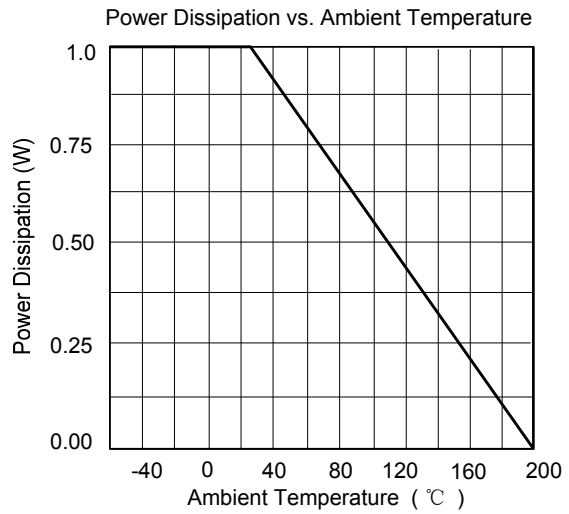
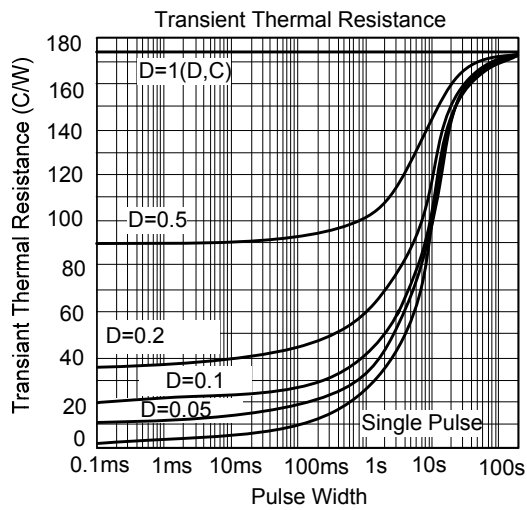
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V_{CBO}	$I_C=100\mu A$	80	120		V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C=10mA$	25	35		V
Collector-Emitter Breakdown Voltage	V_{CES}	$I_C=100\mu A$	80	120		V
Collector-Emitter Breakdown Voltage	V_{CEV}	$I_C=100\mu A, V_{EB}=1V$	80	120		V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E=100\mu A$	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)	$V_{CE(SAT)}$	$I_C=0.5A, I_B=10mA$		30	70	mV
		$I_C=1A, I_B=10mA$		60	130	
		$I_C=2A, I_B=10mA$		125	280	
		$I_C=4A, I_B=50mA$		155	400	
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}	$I_C=4A, I_B=\pm 40mA, V_{CC}=10V$		380		ns

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

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



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