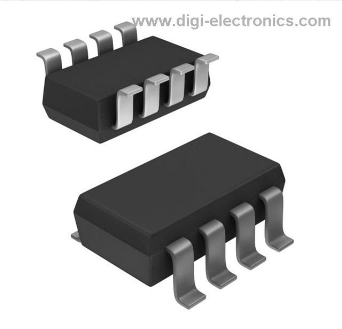
ZHB6792TA Datasheet



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DiGi Electronics Part Number	ZHB6792TA-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	ZHB6792TA
Description	TRANS 2NPN/2PNP 70V 1A SOT223
Detailed Description	Bipolar (BJT) Transistor Array 2 NPN, 2 PNP (H-Bridge) 70V 1A 100MHz 1.25W Surface Mount SM8

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
ZHB6792TA	Diodes Incorporated
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
2 NPN, 2 PNP (H-Bridge)	1A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
70V	750mV @ 50mA, 2A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100nA (ICBO)	300 @ 100mA, 2V
Power - Max:	Frequency - Transition:
1.25W	100MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
SOT-223-8	SM8
Base Product Number:	
ZHB6792	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.29.0075	

SM-8 BIPOLAR TRANSISTOR H-BRIDGE

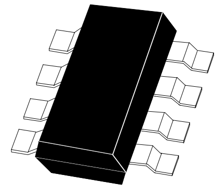
ZHB6792

PRELIMINARY DATA SHEET ISSUE A MAY 1998

FEATURES

- Compact package
- Low on state losses
- Low drive requirements
- Operates up to 70V supply
- 1 Amp continuous rating

PARTMARKING DETAIL – ZHB6792

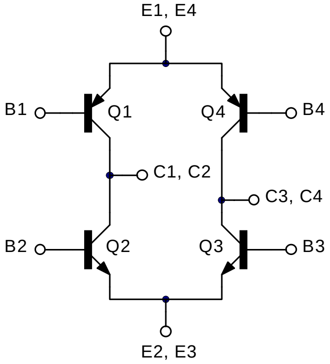


SM-8
(8 LEAD SOT223)

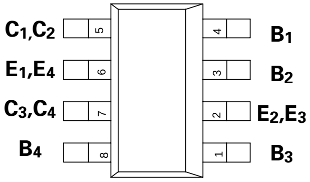
ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	NPNs	PNPs	UNIT
Collector-Base Voltage	V_{CBO}	70	-70	V
Collector-Emitter Voltage	V_{CEO}	70	-70	V
Emitter-Base Voltage	V_{EBO}	5	-5	V
Peak Pulse Current	I_{CM}	2	-2	A
Continuous Collector Current	I_C	1	-1	A
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150		°C

SCHEMATIC DIAGRAM



CONNECTION DIAGRAM

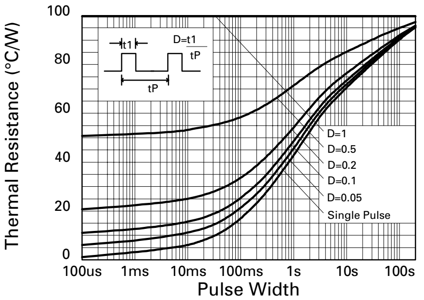


ZETEX

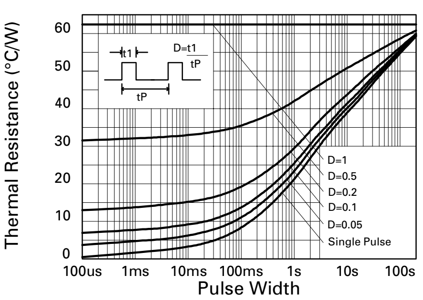
ZHB6792

THERMAL CHARACTERISTICS

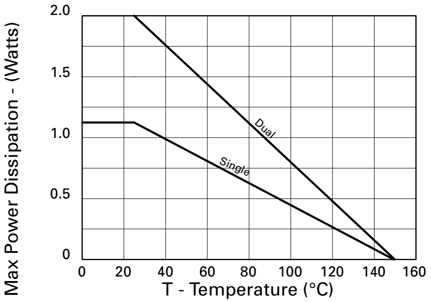
PARAMETER	SYMBOL	VALUE	UNIT
Total Power Dissipation at T_{amb} = 25°C* Any single transistor "on" Q1 and Q3 "on" or Q2 and Q4 "on" equally	P_{tot}	 1.25 2	 W W
Derate above 25°C* Any single transistor "on" Q1 and Q3 "on" or Q2 and Q4 "on" equally		 10 16	 mW/ °C mW/ °C
Thermal Resistance - Junction to Ambient* Any single transistor "on" Q1 and Q3 "on" or Q2 and Q4 "on" equally		 100 62.5	 °C/ W °C/ W



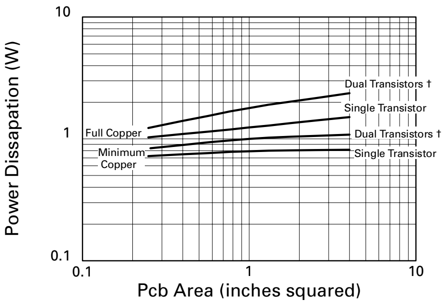
Transient Thermal Resistance Single Transistor "On"



Transient Thermal Resistance Q1 and Q3 or Q2 and Q4 "On"



Derating curve



Pd v Pcb Area Comparison

* The power which can be dissipated assuming the device is mounted in a typical manner on a PCB with copper equal to 2 inches square.

†"Two devices on" is the standard operating condition for the bridge. Eg. opposing NPN/PNP pairs rurned on.

NPN TRANSISTORS
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS.
BreakdownVoltages	$V_{(BR)CBO}$	70			V	I_C=100µA
	$V_{(BR)CEO}$	70			V	I_C=10mA*
	$V_{(BR)EBO}$	5			V	I_E=100µA
Cut-Off Currents	I_{CBO}			0.1	µA	V_{CB}=55V
	I_{EBO}			0.1	µA	V_{EB}=4V
Saturation Voltages	$V_{CE(sat)}$			0.15 0.5	V V	I_C=0.1A, I_B=0.5mA* I_C=1A, I_B=10mA*
	$V_{BE(sat)}$			0.9	V	I_C=1A, I_B=10mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.9	V	I_C=1A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	500 400 150				I_C=100mA,V_{CE}=2V* I_C=500mA, V_{CE} =2V* I_C=1A,V_{CE}=2V*
Transition Frequency	f_T	150			MHz	I_C=50mA, V_{CE}=5V, f=50MHz
Input Capacitance	C_{ibo}		200		pF	V_{EB}=0.5V, f=1MHz
Output Capacitance	C_{obo}		12		pF	V_{CB}=10V, f=1MHz
Switching Times	t_{on} t_{off}		46 1440		ns ns	I_C=500mA, I_{B1}=50mA I_{B2}=50mA, V_{CC}=10V

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

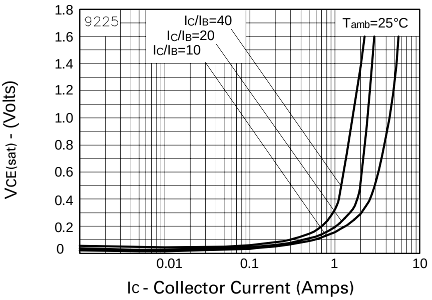
ZHB6792

PNP TRANSISTORS
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

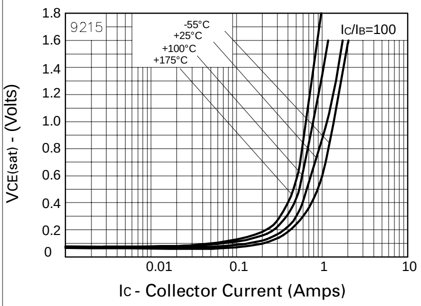
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-75			V	I_C=-100µA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-70			V	I_C=-10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	I_E=-100µA
Collector Cut-Off Current	I_{CBO}			-0.1	µA	V_{CB}=-40V
Emitter Cut-Off Current	I_{EBO}			-0.1	µA	V_{EB}=-4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.45 -0.5	V V	I_C=-500mA, I_B=-5mA* I_C=-1A, I_B=-25mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-0.95	V	I_C=-1A, I_B=-25mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-0.75		V	I_C=-1A, V_{CE}=-2V*
Static Forward Current Transfer	h_{FE}	300 250 200		800		I_C=-10mA, V_{CE}=-2V* I_C=-500mA, V_{CE}=-2V* I_C=-1A, V_{CE}=-2V*
Transition Frequency	f_T	100			MHz	I_C=-50mA, V_{CE}=-5V f=50MHz
Input Capacitance	C_{ibo}		225		pF	V_{EB}=-0.5V, f=1MHz
Output Capacitance	C_{obo}		22		pF	V_{CB}=-10V, f=1MHz
Switching Times	t_{on} t_{off}		35 750		ns ns	I_C=-500mA, I_{B1}=-50mA I_{B2}=-50mA, V_{CC}=-10V

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

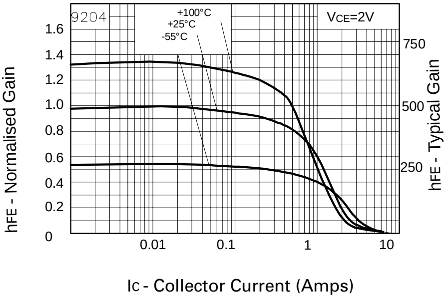
PNP TRANSISTOR TYPICAL CHARACTERISTICS



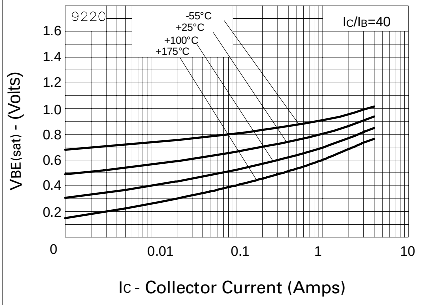
$V_{CE(sat)}$ v I_C



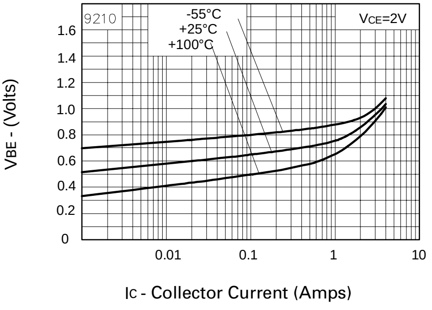
$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C

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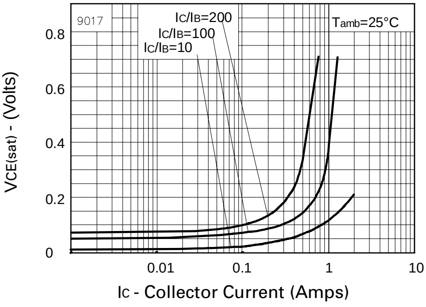
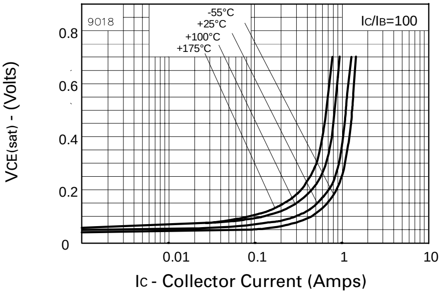
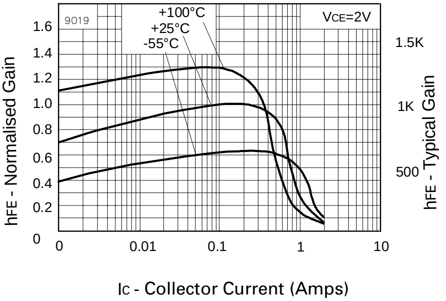
NPN TRANSISTOR TYPICAL CHARACTERISTICS



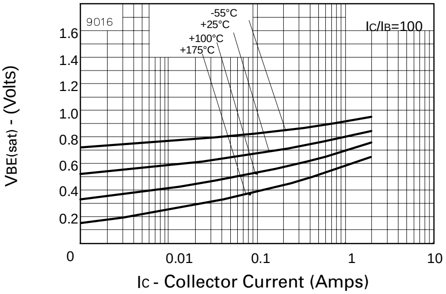
$V_{CE(sat)}$ v I_C



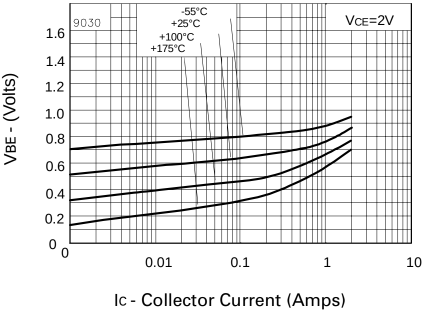
$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C

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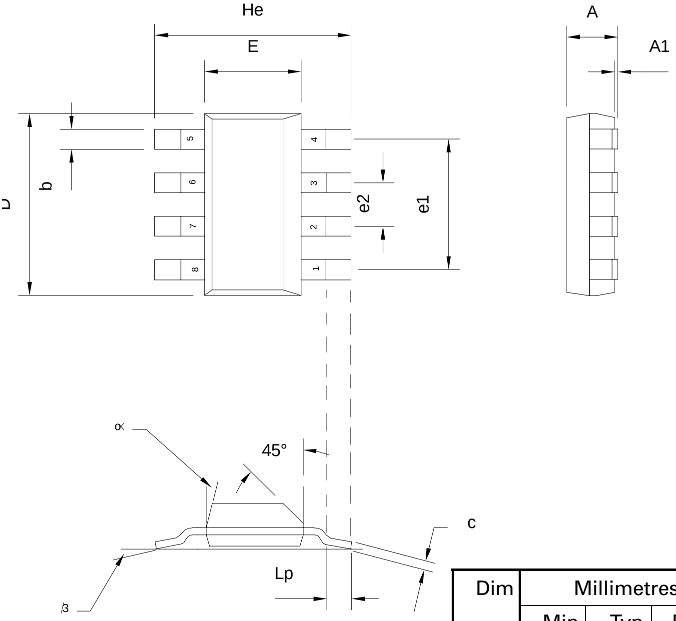

Dim	Millimetres			Inches		
	Min	Typ	Max	Min	Typ	Max
A	–	–	1.7	–	–	0.067
A1	0.02	–	0.1	0.0008	–	0.004
b	–	0.7	–	–	0.028	–
c	0.24	–	0.32	0.009	–	0.013
D	6.3	–	6.7	0.248	–	0.264
E	3.3	–	3.7	0.130	–	0.145
e1	–	4.59	–	–	0.180	–
e2	–	1.53	–	–	0.060	–
He	6.7	–	7.3	0.264	–	0.287
Lp	0.9	–	–	0.035	–	–

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I hereby certify that

is this day incorporated in Hong Kong under the Companies Ordinance (Chapter 622 of the Laws of Hong Kong), and that this company is a limited company.

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Michele Dickstein
President

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