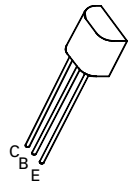
NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

ZTX649

ISSUE 2 – APRIL 94

FEATURES
* 25 Volt V_{CEO}
* 2 Amp continuous current
* Low saturation voltage
* P_{tot}=1 Watt

APPLICATIONS
* Motor driver
* DC-DC converters



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	6	A
Continuous Collector Current	I_C	2	A
Power Dissipation at T_{amb}=25°C derate above 25°C	P_{tot}	1 5.7	W mW/ °C
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +200	°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	35			V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25			V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			0.1 10	μA μA	V_{CB}=30V V_{CB}=30V,T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			0.1	μA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.12 0.23	0.3 0.5	V V	I_C=1A, I_B=100mA* I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1	V	IC=1A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	70 100 75 15	200 200 150 50	300		I_C=50mA, V_{CE}=2V* I_C=1A, V_{CE}=2V* I_C=2A, V_{CE}=2V* I_C=6A, V_{CE}=2V*
Transition Frequency	f_T	150	240		MHz	I_C=100mA, V_{CE}=5V f=100MHz

ZTX649

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

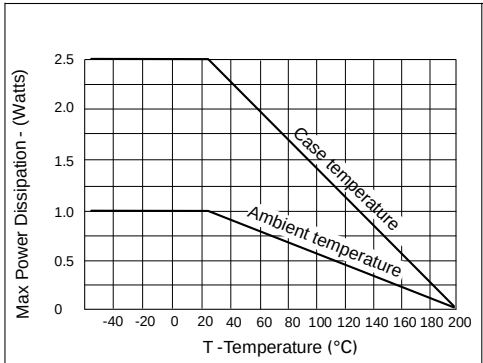
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Output Capacitance	C_{obo}		25	50	pF	V_{CB}=10V f=1MHz
Switching Times	t_{on}		55		ns	I_C=500mA, V_{CC}=10V I_{B1}=I_{B2}=50mA
	t_{off}		300		ns	

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

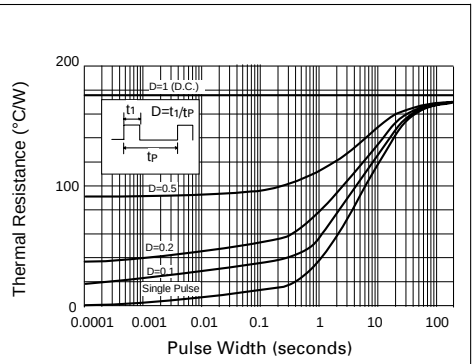
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance:Junction to Ambient$_1$ Junction to Ambient$_2$ Junction to Case	$R_{th(j-amb)1}$ $R_{th(j-amb)2}$ † $R_{th(j-case)}$	175 116 70	°C/W °C/W °C/W

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



Derating curve



Maximum transient thermal impedance

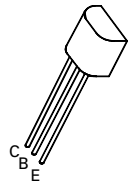
NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

ZTX649

ISSUE 2 – APRIL 94

FEATURES
* 25 Volt V_{CEO}
* 2 Amp continuous current
* Low saturation voltage
* P_{tot}=1 Watt

APPLICATIONS
* Motor driver
* DC-DC converters



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	6	A
Continuous Collector Current	I_C	2	A
Power Dissipation at T_{amb}=25°C derate above 25°C	P_{tot}	1 5.7	W mW/ °C
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +200	°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	35			V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25			V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			0.1 10	μA μA	V_{CB}=30V V_{CB}=30V,T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			0.1	μA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.12 0.23	0.3 0.5	V V	I_C=1A, I_B=100mA* I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1	V	IC=1A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	70 100 75 15	200 200 150 50	300		I_C=50mA, V_{CE}=2V* I_C=1A, V_{CE}=2V* I_C=2A, V_{CE}=2V* I_C=6A, V_{CE}=2V*
Transition Frequency	f_T	150	240		MHz	I_C=100mA, V_{CE}=5V f=100MHz

ZTX649

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

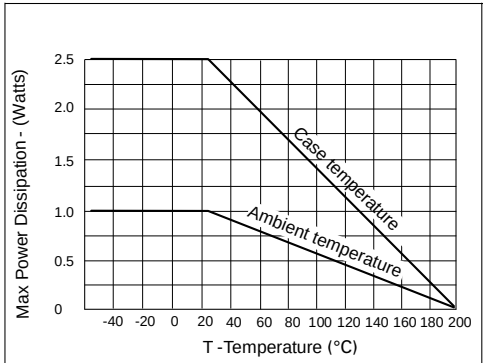
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Output Capacitance	C_{obo}		25	50	pF	V_{CB}=10V f=1MHz
Switching Times	t_{on}		55		ns	I_C=500mA, V_{CC}=10V I_{B1}=I_{B2}=50mA
	t_{off}		300		ns	

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

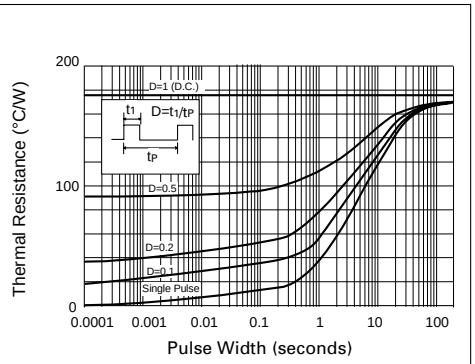
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance:Junction to Ambient$_1$ Junction to Ambient$_2$ Junction to Case	$R_{th(j-amb)1}$ $R_{th(j-amb)2}$ † $R_{th(j-case)}$	175 116 70	°C/W °C/W °C/W

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



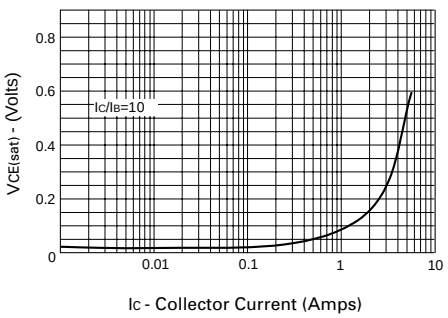
Derating curve



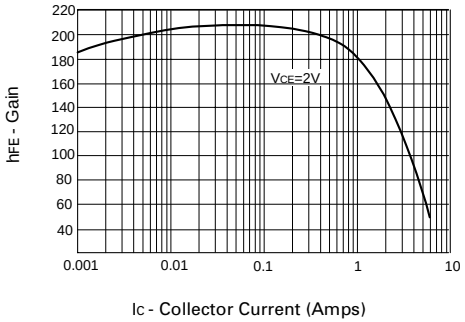
Maximum transient thermal impedance

ZTX649

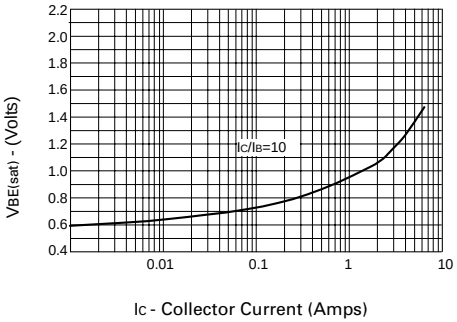
TYPICAL CHARACTERISTICS



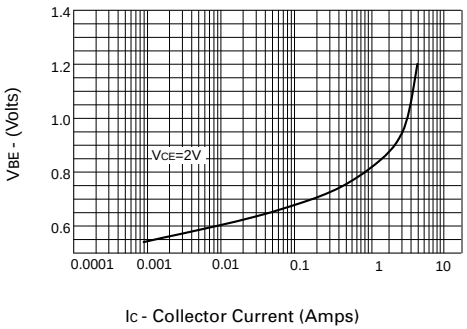
VCE(sat) v IC



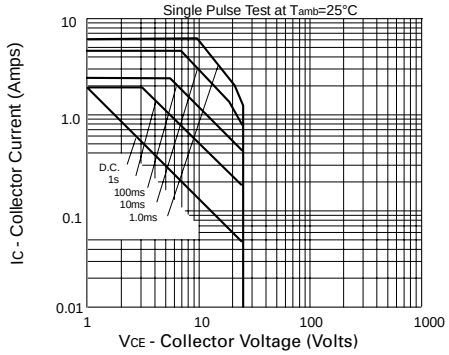
hFE v IC



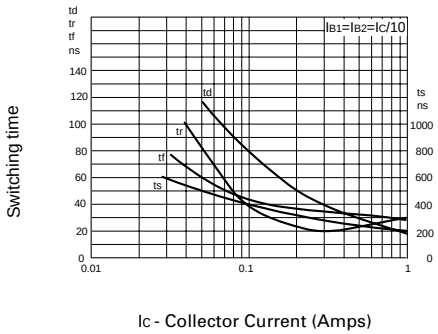
VBE(sat) v IC



VBE(on) v IC



Safe Operating Area



Switching Speeds

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Bipolar Transistors - BJT ***category:***

Click to view products by Diodes Incorporated ***manufacturer:***

Other Similar products are found below :

619691C MCH4017-TL-H MJ15024/WS MJ15025/WS BC546/116 BC556/FSC BC557/116 BSW67A HN7G01FU-A(T5L,F,T NJVMJD148T4G NSVMMBT6520LT1G NTE187A NTE195A NTE2302 NTE2330 NTE2353 NTE316 IMX9T110 NTE63 NTE65 C4460 SBC846BLT3G 2SA1419T-TD-H 2SA1721-O(TE85L,F) 2SA1727TLP 2SA2126-E 2SB1202T-TL-E 2SB1204S-TL-E 2SC5488A-TL-H 2SD2150T100R SP000011176 FMC5AT148 2N2369ADCSM 2SB1202S-TL-E 2SC2412KT146S 2SC4618TLN 2SC5490A-TL-H 2SD1816S-TL-E 2SD1816T-TL-E CMXT2207 TR CPH6501-TL-E MCH4021-TL-E BC557B TTC012(Q) BULD128DT4 JANTX2N3810 Jantx2N5416 US6T6TR KSF350 068071B