PRODUCT SPECIFICATIONS

SEMICONDUCTOR TECHNOLOGY, INC.
3131 S. E. JAY STREET, STUART, FL 34997
PH: (561)283-4500 FAX: (561)286-8914
Website: http://www.semi-tech-inc.com

TYPE: MJH16012

CASE OUTLINE: TO-218

NPN SILICON HIGH VOLTAGE POWER TRANSISTOR

ABSOLUTE MAXIMUM RATING:

Collector to Base Voltage	BV_{CBO}		Vdc
Collector to Emitter Voltage	BV_{CEV}	850	Vdc
Emitter to Base	BV_{EBO}	6.0	Vdc
Collector to Emitter	$BV_{CEO(sus)}$	450	Vdc
Continuous Collector Current	I_C	15	Adc
Peak Collector Current	I_{CM}	20	Adc
Power Dissipation T_A = 25 °C	P_D	135	Watts
Power Dissipation T_C = 25 °C	P_D		Watts
Storage Temperature	T_{stg}	-55 to +150	°C
Operating Temperature	T_J	-55 to +150	°C
Lead Temperature From Case	T_L	275	°C

ELECTRICAL CHARACTERISTICS TA @ 25 °C

PARAMETERS	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector to Base Voltage	BV_{CBO}					Vdc
Emitter to Base Voltage	BV_{EBO}					Vdc
Collector to Emitter Voltage	$BV_{CEO(sus)}$	I_C = 100mA I_B = 0	450			Vdc
Collector to Emitter Voltage	BV_{CEO}					Vdc
Collector to Emitter Voltage	BV_{CEV}					Vdc
Collector Cutoff Current	I_{CER}	V_{CE} = 850V R_{BE} = 50Ω T_C = 100°C			2.5	mA
Collector Cutoff Current	I_{CBO}					mA
Collector Cutoff Current	I_{CEV}	V_{CEV} = 850V $V_{BE(OFF)}$ = 1.5V			0.25	mA
Collector Cutoff Current	I_{CEV}	V_{CEV} = 850V $V_{BE(OFF)}$ = 1.5VT_C=100°C			1.5	mA
Collector Cutoff Current	I_{CEX}					mA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 6.0V			10	mA
D.C. Current Gain Pulsed*	h_{FE}	I_C = 15A V_{CE} = 5.0V	5.0			-
D.C. Current Gain Pulsed*	h_{FE}					-
D.C. Current Gain Pulsed*	hFE					-
D.C. Current Gain Pulsed*	h_{FE}					-
D.C. Current Gain Pulsed*	h_{FE}					-
Saturation Voltage*	$V_{CE(sat)}$	I_C = 5.0A I_B = 0.7A			2.5	Vdc
Saturation Voltage*	$V_{CE(sat)}$	I_C = 10A I_B = 1.3A			3.0	Vdc
Saturation Voltage*	$V_{CE(sat)}$	I_C = 10A I_B = 1.3A T_C=100°C			3.0	Vdc
Base Emitter Voltage*	$V_{BE(sat)}$					Vdc
Base Emitter Voltage*	$V_{BE(sat)}$	I_C = 10A I_B = 1.3A			1.5	Vdc
Base Emitter Voltage*	$V_{BE(sat)}$	I_C = 10A I_B = 1.3A T_C=100°C			1.5	Vdc
Base Emitter Voltage*	$V_{BE(on)}$					Vdc

Notes: *Pulse Width ≤300usec 2% Duty Cycle

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SMALL SIGNAL CHARACTERISTICS

	SYMBOL	MIN	TYP	MAX	UNITS
Current Gain at F =	h_{fe}				-
Input Capacitance	C_{ib}				pf
Output Capacitance V_{CB} = 10V I_E = 0 f_{test} = 1.0KHz	C_{ob}			400	pf
Transition Frequency	f_T				MHz
Input Impedance					Ohms
Voltage Feedback Ratio					X10-4
Output Admittance					µmhos
Noise Figure	NF				dB

SWITCHING CHARACTERISTICS

Resistive Load							
			SYMBOL	MIN	TYP	MAX	UNITS
Storage Time	I_C = 10A V_{CC} = 250V I_{B1} = 1.3A P_W = 30µs DC = ≤ 2%	$V_{BE(OFF)}$ = 5.0V	t_s		650		ns
Fall Time			t_f		80		ns
Delay Time		I_{B2} = 2.6A R_{B2} = 1.6Ω	t_d		20		ns
Rise Time			t_r		200		ns
Storage Time			t_s		1200		ns
Fall Time			t_f		200		ns
Inductive Load			SYMBOL	MIN	TYP	MAX	UNITS
Storage Time	I_C = 10A I_{B1} = 1.3A $V_{BE(OFF)}$ = 5.0V $V_{CE(pk)}$ = 400V	T_C = 100°C	t_{sv}		800	1800	ns
Crossover Time			t_c		90	250	ns
Fall Time			t_{fi}		50	200	ns
Storage Time		T_C = 150°C	t_{sv}		1050		ns
Crossover Time			t_c		120		ns
Fall Time			t_{fi}		70		ns

FUNCTIONAL TEST

	SYMBOL	MIN	TYP	MAX	UNITS
Common-Emitter Amplifier Power Gain	GPE				dB
Power Output	Pout				Watt
Collector Efficiency	η				%
Power Output	Pout				Watt
Second Breakdown Collector Current	$I_{S/B}$				A
Thermal-Resistance, Junction to Case	$R_{\theta JC}$			0.93	°C/W