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: BUZ50A

CASE OUTLINE: TO-220AB

HIGH VOLTAGE POWER MOSFET
N-CHANNEL

ABSOLUTE MAXIMUM RATING:

Drain – Source Voltage	V_{DSS}	1000	Vdc
Drain – Gate Voltage	V_{DGR}	1000	Vdc
Drain Current – Continuous	I_D	2.5	Adc
Drain Current – Pulsed	I_{DM}	10	Adc
Gate – Source Voltage	V_{GS}	±20	Vdc
Power Dissipation	P_D	75	Watts
Inductive Current	I_L		Adc
Operating and Storage Temperature	T_J & T_{stg}	-55 to +150	°C
Lead Temperature From Case	T_L		°C

ELECTRICAL CHARACTERISTICS TA @ 25°C

Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = .25mA	1000			Vdc
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1.0mA	2.1		4.0	Vdc
Gate – Body Leakage Current	I_{GSS}	V_{GS} = ± 20V, V_{DS} = 0V			100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 1000V, V_{GS} = 0V, V_{DS} = 1000V, V_{GS} = 0V, T_J = 125°C			0.25 1.0	mA mA
On State Drain Current	$I_{D(on)}$					Adc
Drain Source On-Resistance	$r_{DS(on)}$	V_{GS} = 10V, I_D = 1.5A			5.0	Ohms
Forward Transconductance	g_{FS}	V_{DS} = 25V, I_D = 1.5A	0.7			mhos
Drain-Source On Voltage	$V_{DS(on)}$					Vdc
Drain-Source-On Voltage	$V_{DS(on)}$					Vdc
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1 MHz			2100	pF
Output Capacitance	C_{oss}				120	pF
Reverse Transfer Capacitance	C_{rss}				50	pF

TYPE: **BUZ50A**

Drain Source Diode Characteristics		Symbol	Min	Typ	Max	Units
Forward On Voltage	I_F = 5.0A, V_{GS} = 0V	V_{SD}			1.3	Vdc
Reverse Recovery Time	I_F = 2.5A di_F/dt = 100A/µs, V_{GS} = 0V	t_{rr}		2000		ns
Reverse Recovery Charge	V_R = 100V	Q_{rr}		15		µC
Total Gate Charge		Q_g				nC
Gate – Source Charge		Q_{gs}				nC
Gate – Drain Charge		Q_{gd}				nC

Switching Characteristics		Symbol	Min	Typ	Max	Units
Turn-On Time		t_{on}				
Turn-Off Time		t_{off}				
Delay Time (Turn On)		$t_{d(on)}$			45	ns
Rise Time	V_{DD} = 30V, I_D = 2.0A V_{GS} = 10V, R_{GS} = 50Ω	t_r			60	ns
Delay Time (Turn Off)	R_{gen} = 50Ω	$t_{d(off)}$			140	ns
Fall Time		t_f			80	ns

Thermal Characteristics	Symbol			Units
Junction To Case	$R_{\theta JC}$			°C/W
Junction To Ambient	$R_{\theta JA}$			°C/W
Internal Package Inductance	**Symbol**	**Typ**	**Max**	**Units**
Internal Drain Inductance	L_d	4.5		nH
Internal Source Inductance	L_s	7.5		nH