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BSR92P

P-Channel Enhancement MOSFET

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Product Summary

- V_{DS}= -250V, I_D= -0.15 A
- $R_{DS(ON)}$ = 7.7 mΩ @V_{GS}= -10V (typ)

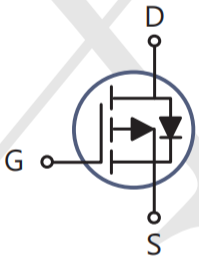
Application

- Load Switch for Portable Devices
- DC/DC Converter

Package and Pin Configuration

SOT23-3L

Circuit diagram



Marking: LDs

ABSOLUTE MAXIMUM RATINGS (T_C=25°C unless otherwise noted)

Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	-250	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous (Note 2)	T_A=25°C	I_D	-0.15	A
	T_A=70°C		-0.12	A
-Pulsed (Note 1、Note 2)		I_{DM}	-0.6	A
Single Pulse Avalanche Energy (Note 3)		E_{AS}	8	mJ
Maximum Power Dissipation	T_A=25°C	P_D	0.78	W
	T_A=70°C		0.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	160	°C/W

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=-250uA	-250			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-200V , V_{GS}=0V			-1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V , V_{DS}=0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=-250uA	- 1	- 1.5	- 3	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V , I_D=-0.1A		8	9.6	ohm
		V_{GS}=-4.5V , I_D=-0.1A		9	10	ohm
Forward Transconductance	g_{FS}	V_{DS}=10V , I_D=-0.1A		1.5		S
DYNAMIC CHARACTERISTICS (Note 4)						
Input Capacitance	C_{ISS}	V_{DS}=-100V,V_{GS}=0 V f=1.0MHz		229		pF
Output Capacitance	C_{OSS}			16.7		pF
Reverse Transfer Capacitance	C_{RSS}			8.8		pF
Total Gate Charge	Q_g	VDS=-100V,ID=-0.3A,VGS=-10V		4.1		nC
Gate-Source Charge	Q_{gs}	V_{DS}=-100V,I_D=-0.1A , V_{GS}=-10V		0.7		nC
Gate-Drain Charge	Q_{gd}			0.8		nC
SWITCHING CHARACTERISTICS (Note 4)						
Turn-On Delay Time	$t_{D(ON)}$	V_{DD}=-100V I_D=-0.1A V_{GS}=-10V R_{GEN}= 6 ohm		0.9		ns
Rise Time	tr			0.7		ns
Turn-Off Delay Time	$t_{D(OFF)}$			9.9		ns
Fall Time	tf			4.7		ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-1A		-0.85	-1.3	V

Notes

1.Pulse Test Width ≤ 300us,Duty Cycle≤ 2%.
2.Drain current limited by maximum junction temperature.
3.Starting Tj=25°C ,L=0.5mH,V_{DD}=-100V.(See Figure11)
4.Guaranteed by design,not subject to production testing.

Typical Characteristics

Figure 1. Output Characteristics

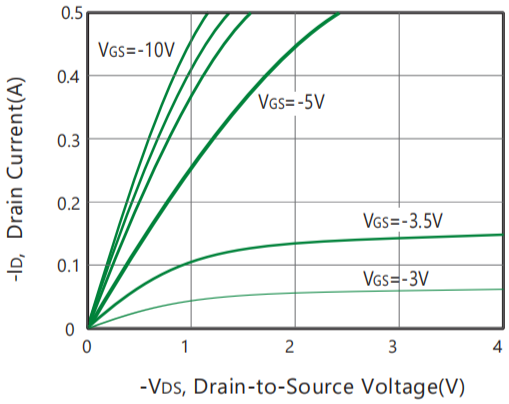


Figure 2. Body Diode Forward Voltage Variation with Source Current

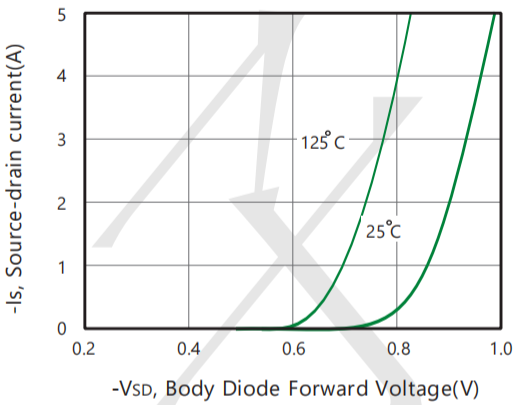


Figure 3. On-Resistance vs. Gate-Source Voltage

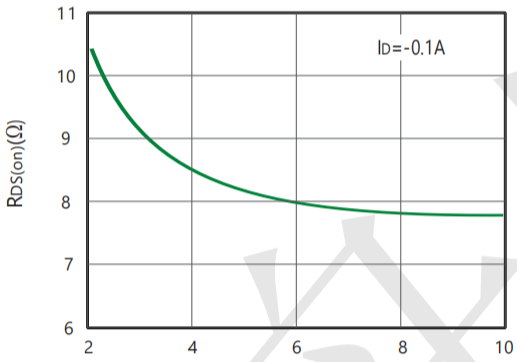


Figure 4. On-Resistance Variation with Drain Current and Temperature

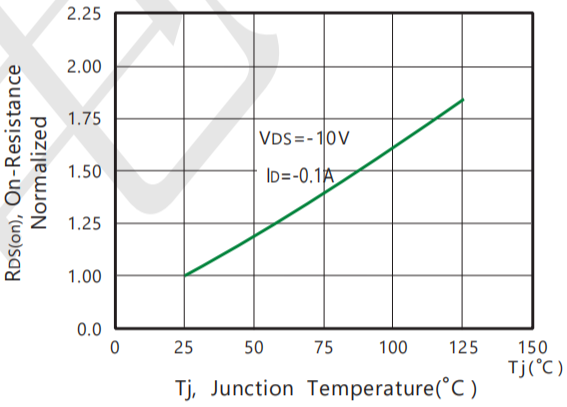


Figure 5. Gate Threshold Variation with Temperature

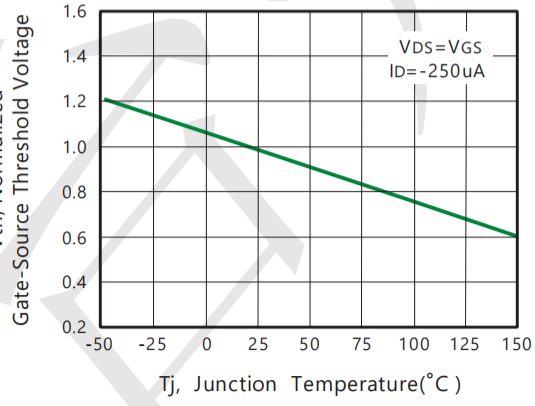
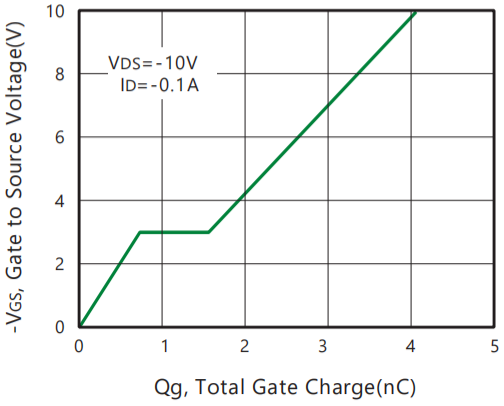


Figure 6. Gate Charge



Typical Characteristics

Figure 7. Capacitance

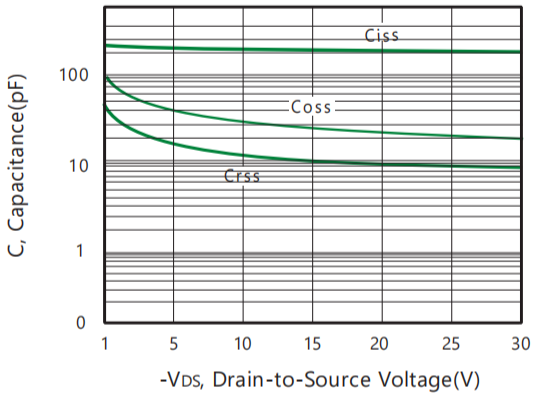
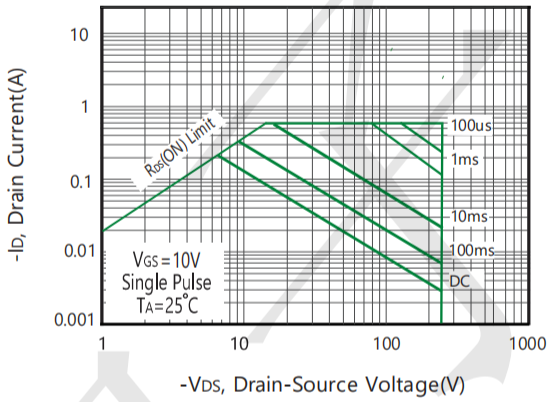


Figure 8. Maximum Safe Operating Area



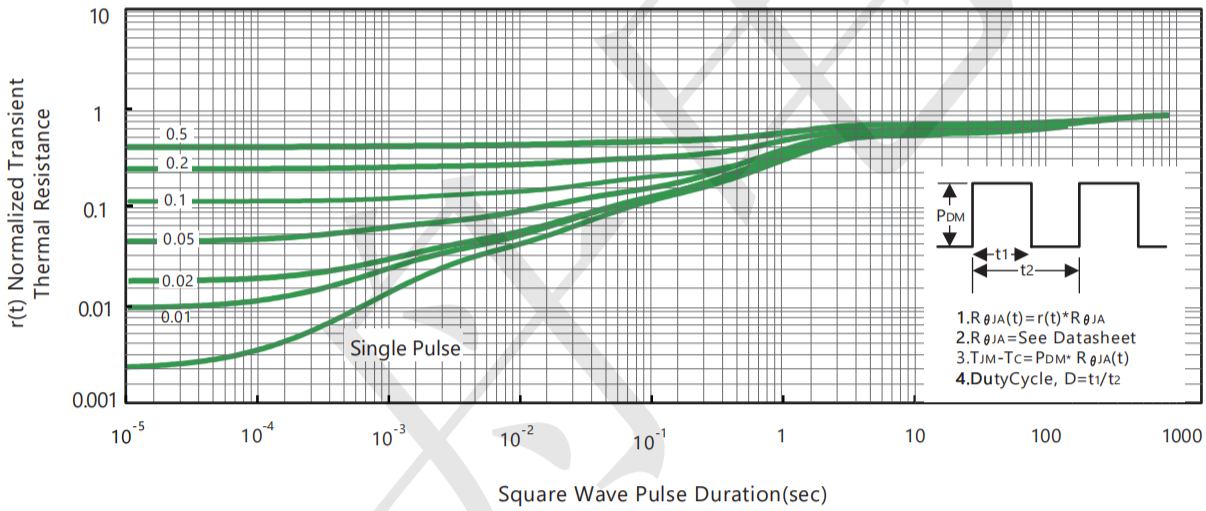


Figure 9. Normalized Thermal Transient Impedance Curve

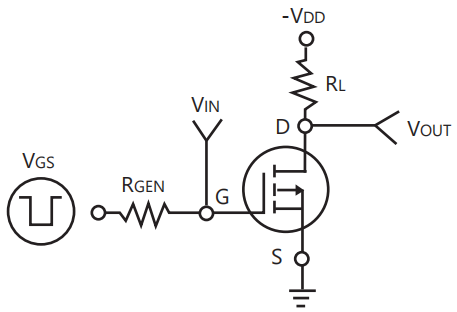


Figure 10a. Switching Test Circuit

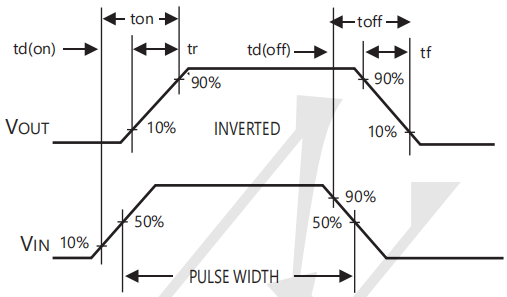
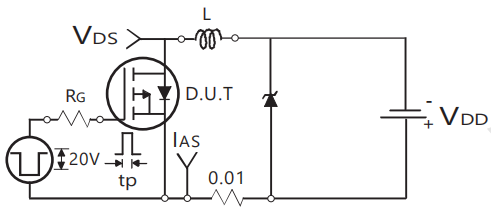
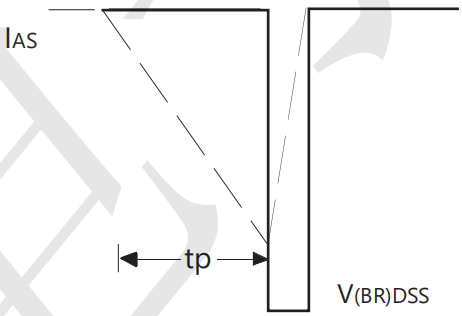


Figure 10b. Switching Waveforms



Unclamped Inductive Test Circuit

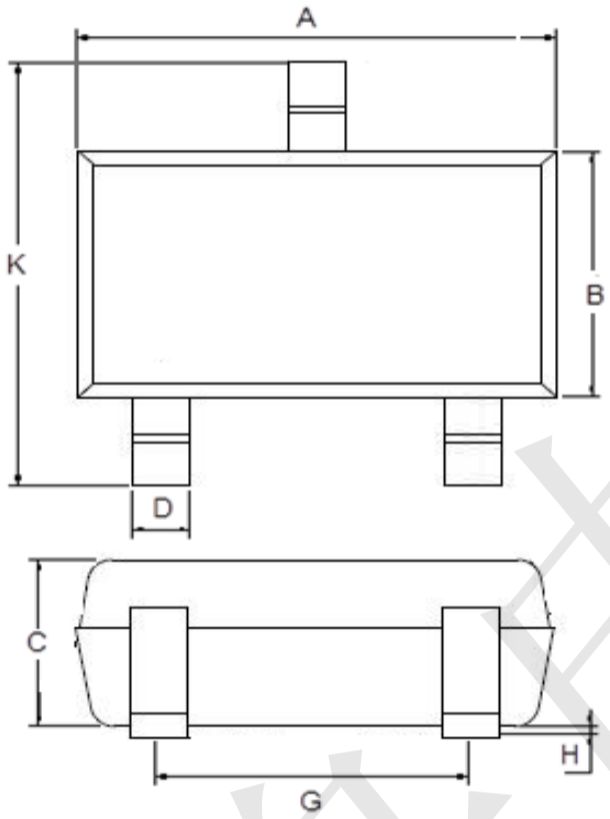
Figure 11a.



Unclamped Inductive Waveforms

Figure 11b.

Package Outline Dimensions (SOT23-3L)



SOT-23-3L		
Dimension	**Min.**	**Max.**
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
G	1.80	2.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

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