

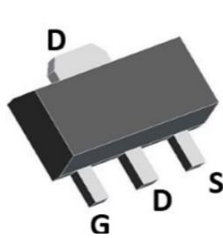
## 100V 8A N-Channel Enhancement Mode Power MOSFET

### FEATURES

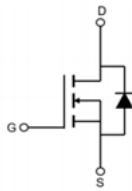
- $R_{DS(on)} \leq 115m\Omega$  @  $V_{GS}=10V$ ,  $I_D=3A$
- Excellent  $R_{DS(on)}$  and Low Gate Charge
- Lead free product is acquired

### APPLICATION

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



SOT89-3L top view



Schematic Diagram

### ASSEMBLY MESSAGE

Product Name	Marking	Package	Packaging
BXT1150N10J	0103M	SOT89-3L	Reel

### ABSOLUTE MAXIMUM RATINGS ( $T_C=25^\circ C$ unless otherwise noted)

Parameter		Symbol	Rating	Unit
			SOT89-3L	
Drain-Source Voltage		$V_{DS}$	100	V
Drain Current	Continuous ( $T_C = 25^\circ C$ )	$I_D$	8	A
	Continuous ( $T_C = 100^\circ C$ )		5.6	A
Drain Current	Pulsed (Note1)	$I_{DM}$	32	A
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Power Dissipation	$T_C = 25^\circ C$	$P_D$	2	W
Maximum Junction Temperature		$T_J$	150	$^\circ C$
Storage Temperature Range		$T_{STG}$	-55 to 150	$^\circ C$

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature

## THERMAL CHARACTERISTICS

Parameter	Symbol	Max.	Unit
		SOT89-3L	
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	62.5	°C / W

## ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise Noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	VGS=0V, ID=250μA	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	VDS=100V, VGS=0V			1	uA
Gate-Body Leakage Current, Forward	I <sub>GSS</sub>	VGS=20V			100	nA
Gate-Body Leakage Current, Reverse		VGS=-20V			-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	VDS=VGS, ID=250μA	1.0	2.0	3.0	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	VGS=10V, ID=3A		85	115	mΩ
		VGS=4.5V, ID=3A		110	135	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C <sub>ISS</sub>	VDS=25V, VGS=0V, f=1.0MHz		655		pF
Output Capacitance	C <sub>OSS</sub>			25		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			21		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	t <sub>D(ON)</sub>	VDD=50V, ID=8A, VGS = 10V, RG=1.8Ω		6.2		ns
Turn-ON Rise Time	t <sub>R</sub>			4.1		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			21		ns
Turn-OFF Fall-Time	t <sub>F</sub>			3.8		ns
Total Gate Charge(Note2)	Q <sub>G</sub>	VDS =50V, VGS =10V, ID =3A		21		nC
Gate Source Charge	Q <sub>GS</sub>			2.2		nC
Gate Drain Charge	Q <sub>GD</sub>			3.3		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	IS=8A, VGS=0V			1.4	V
Diode Continuous Forward Current	I <sub>S</sub>				8	A
Maximum Pulsed Drain to Source Diode Forward Current	I <sub>SM</sub>				32	A

Note: 2. Essentially independent of operating temperature

## TYPICAL CHARACTERISTICS

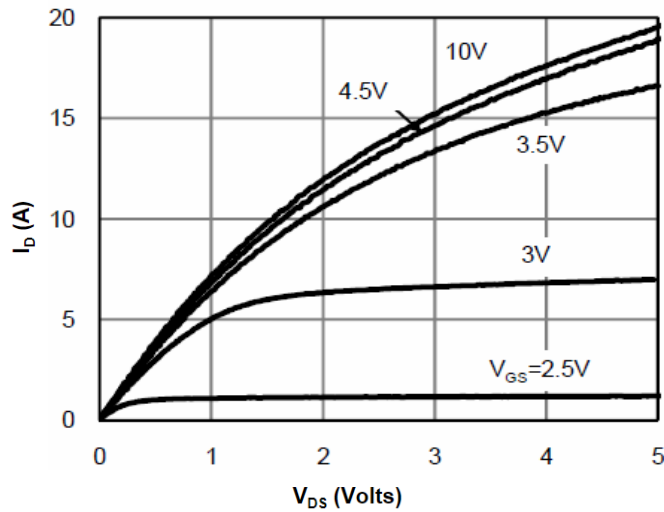


Fig 1: On-Region Characteristics

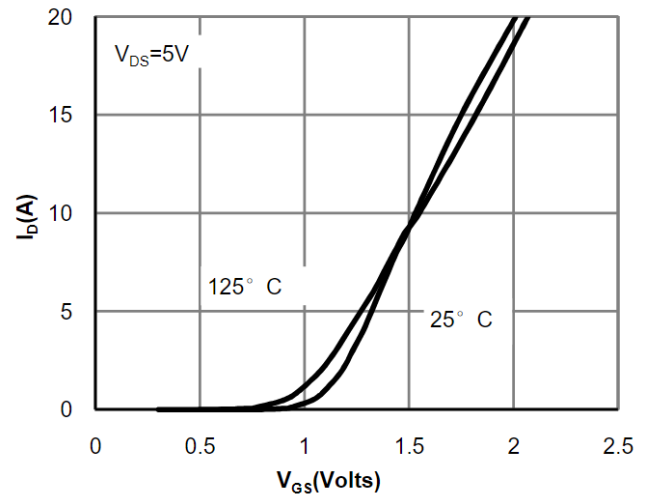


Figure 2: Transfer Characteristics

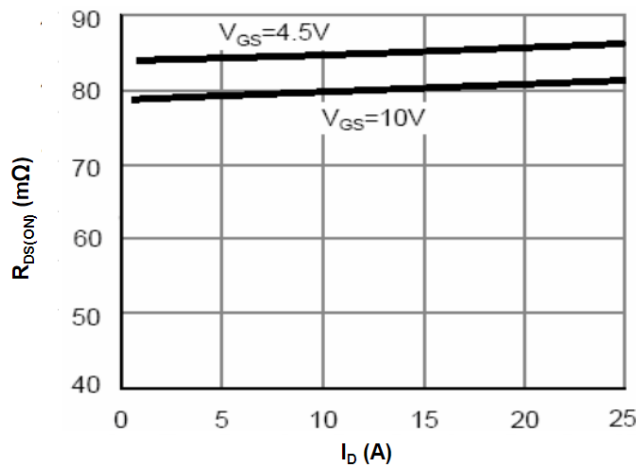


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

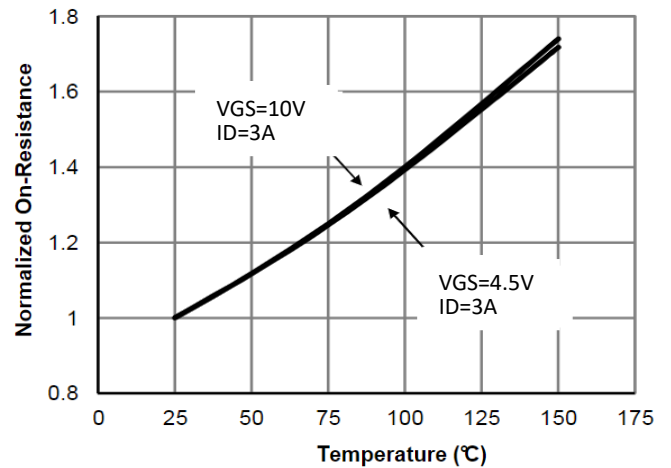


Figure 4: On-Resistance vs. Junction Temperature

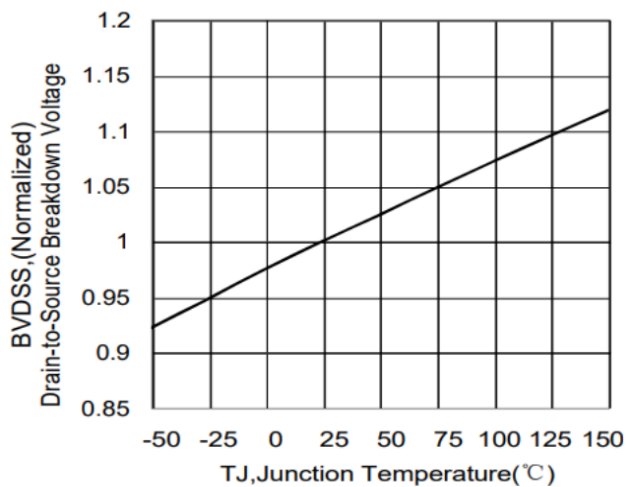


Figure 5: Bvdss Variation with Temperature

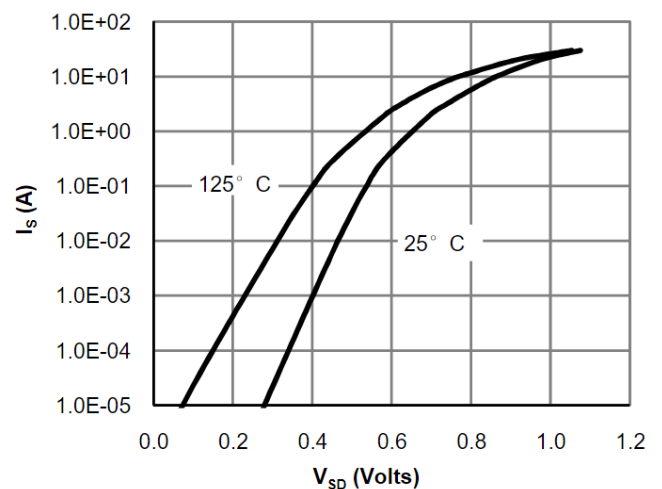
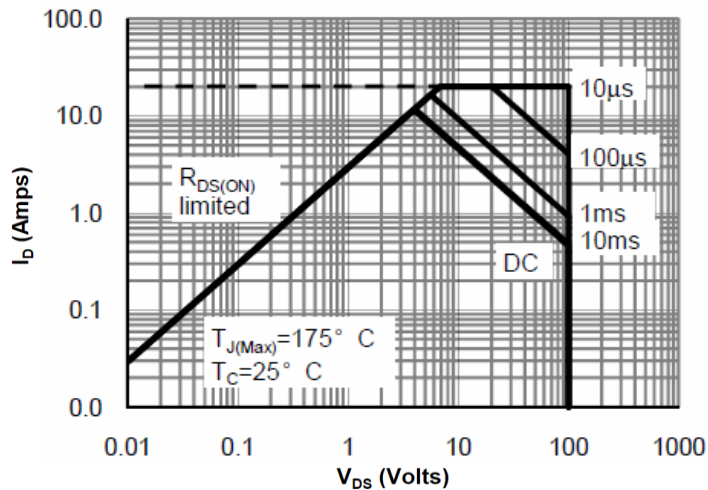
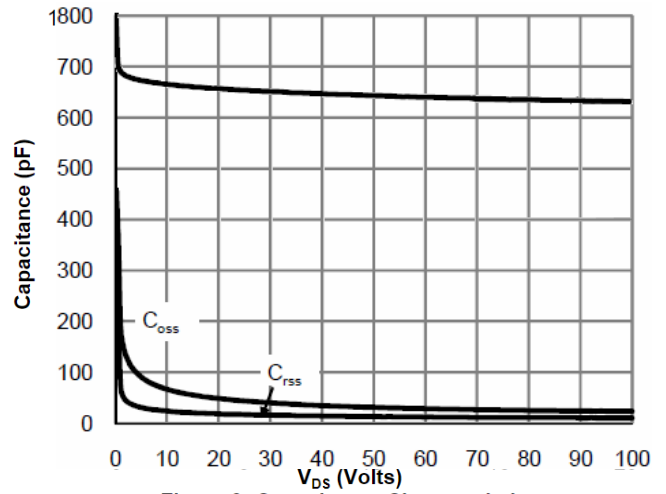
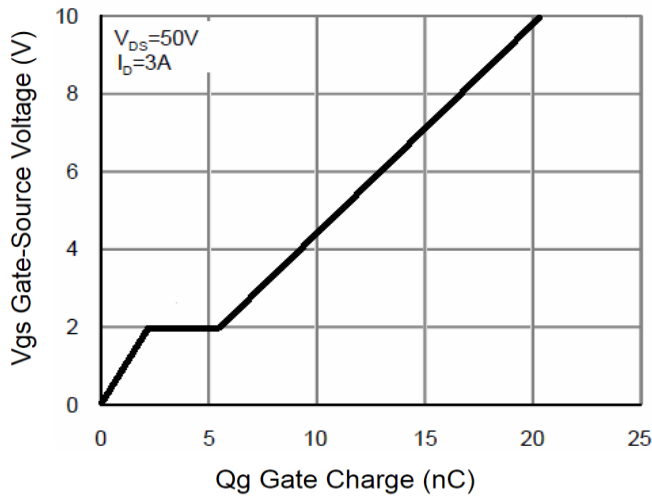
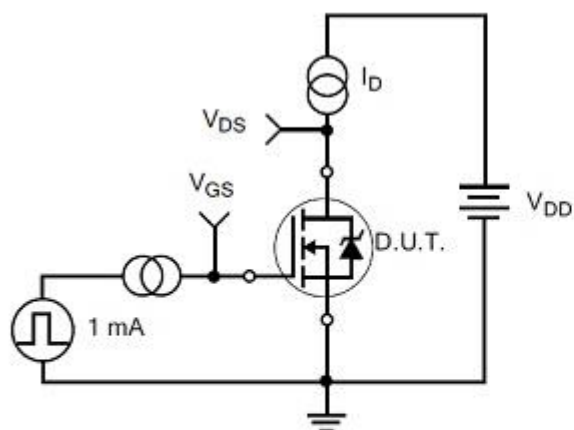


Figure 6: Body-Diode Characteristics

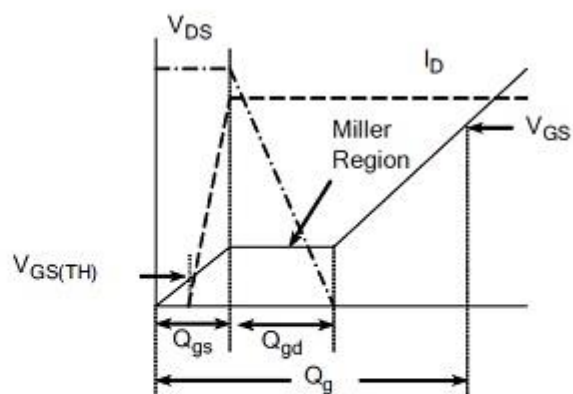
# TYPICAL CHARACTERISTICS(Cont.)



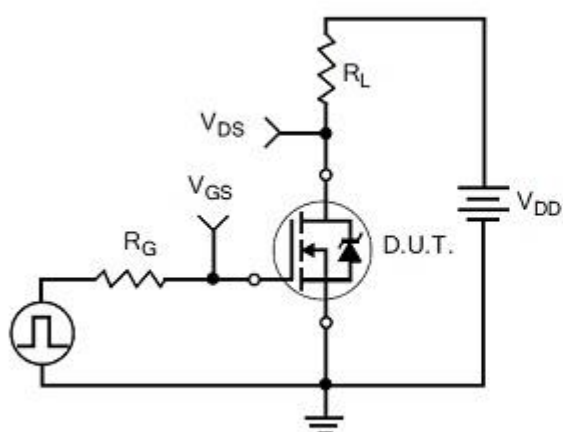
## TEST CIRCUITS AND WAVEFORMS



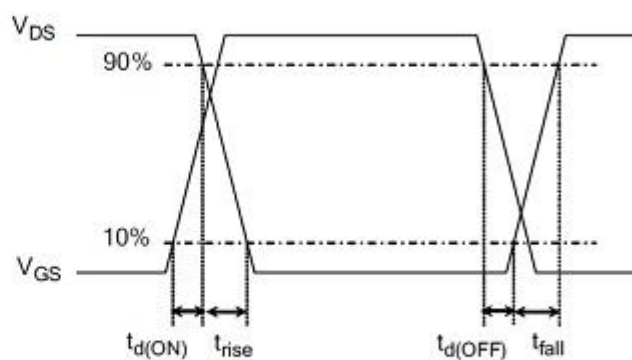
Gate Charge Test Circuit



Gate Charge Waveform

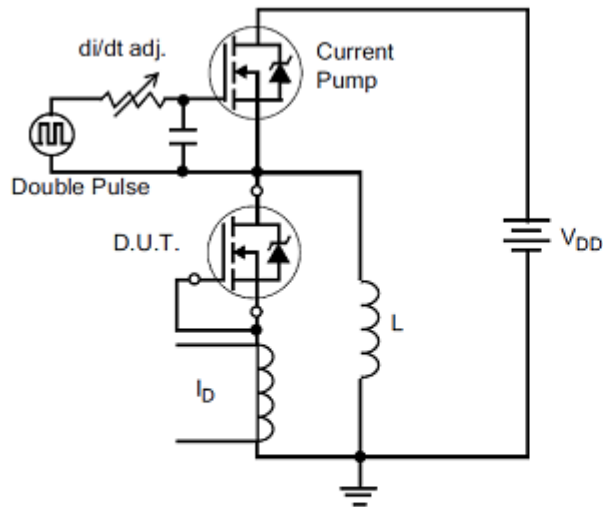


Resistive Switching Test Circuit

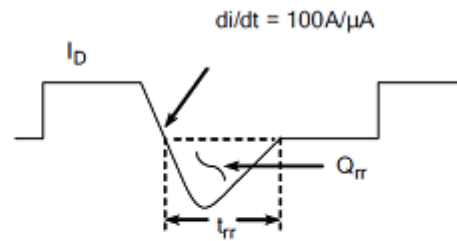


Resistive Switching Waveforms

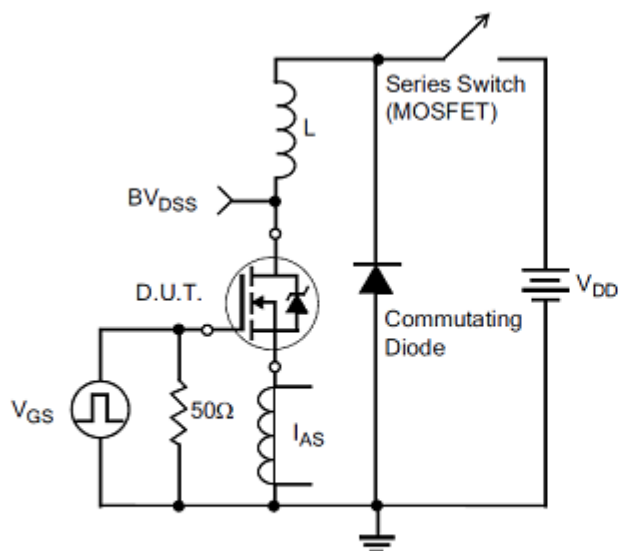
# TEST CIRCUITS AND WAVEFORMS(Cont.)



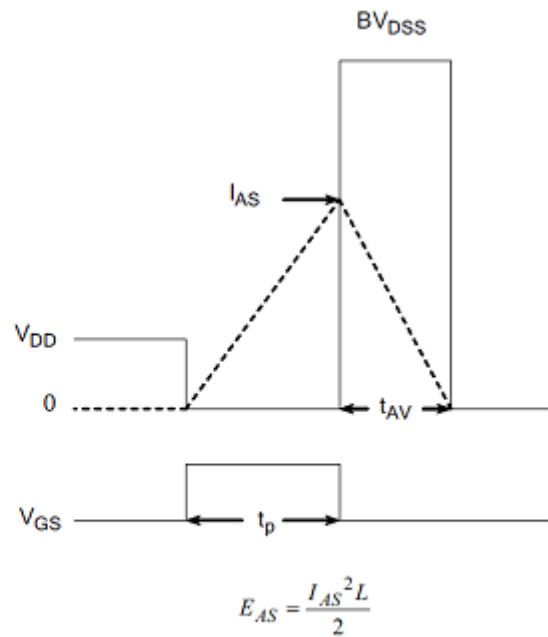
Diode Reverse Recovery Test Circuit



Diode Reverse Recovery Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

## Revision history

### Document revision history

Date	Revision	Changes
2-Jul-2021	1.0	First release

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