



UTT75N08M

Power MOSFET

75A, 80V N-CHANNEL POWERTRENCH MOSFET

DESCRIPTION

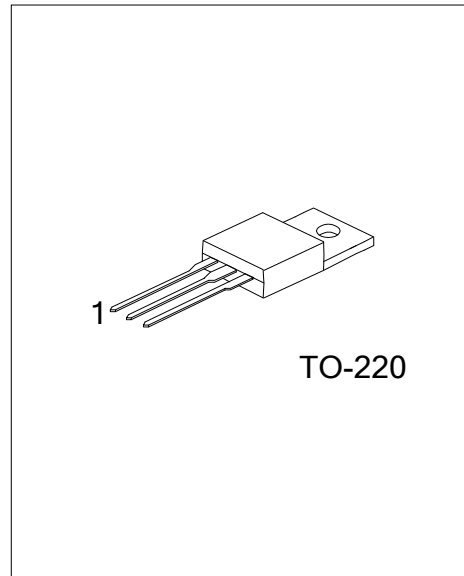
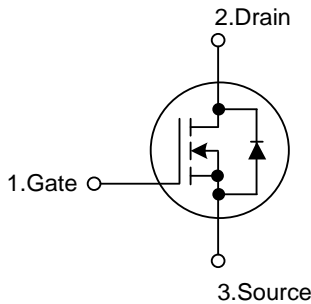
The UTC **UTT75N08M** is an N-channel enhancement MOSFET, it uses UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **UTT75N08M** is suitable for DC-DC converters, Off-Line UPS, High Voltage Synchronous Rectifier, Primary Switch for 48V and 24V Systems, etc.

FEATURES

- * $R_{DS(ON)} \leq 11 \text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=75\text{A}$
- * $R_{DS(ON)} \leq 13 \text{ m}\Omega$ @ $V_{GS}=4.5\text{V}$, $I_D=75\text{A}$
- * High Switching Speed
- * High Current Capacity

SYMBOL



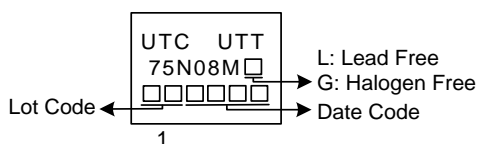
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT75N08ML-TA3-T	UTT75N08MG-TA3-T	TO-220	G	D	S	Tube

Note: Pin Assignment: G: Gate D: Drain S: Source

<p>UTT75N08MG-TA3-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_C=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	80	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current	Continuous	I _D	75
	Pulsed (Note 2)	I _{DM}	300
Single Pulsed Avalanche Energy (Note 3)	E _{AS}	130	mJ
Peak Diode Recovery dv/dt (Note 4)	dv/dt	3.2	V/ns
Power Dissipation	P _D	142	W
Junction Temperature	T _J	+150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating : Pulse width limited by T_J.

3. L=0.1mH, I_{AS}=51A, V_{DD}=50V, R_G=25 Ω, Starting T_J = 25°C

4. I_{SD} ≤ 30A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	62.5	°C/W
Junction to Case	θ _{JC}	0.88	°C/W

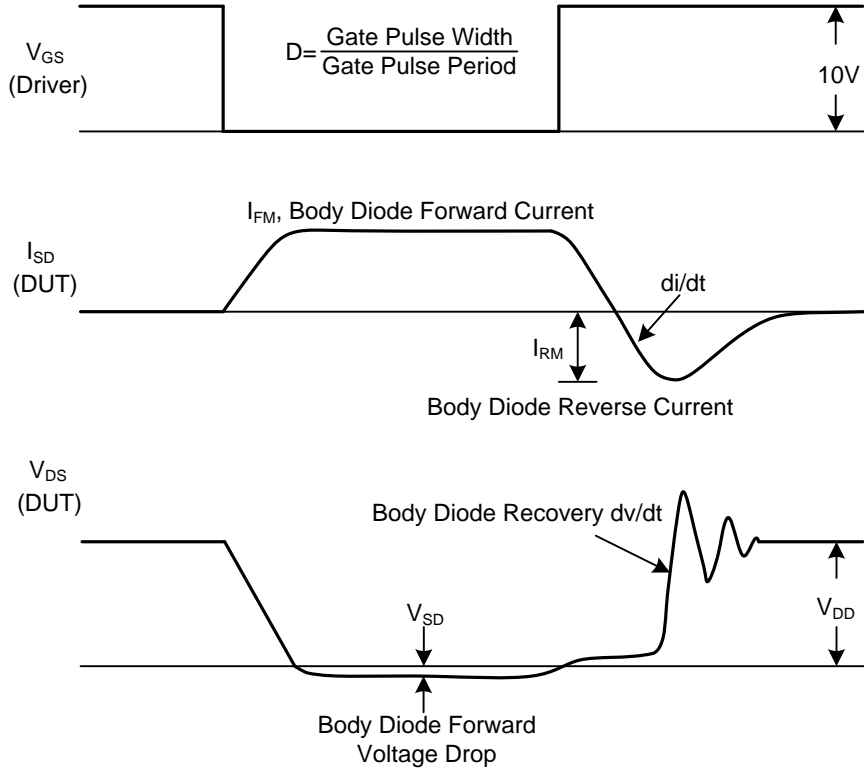
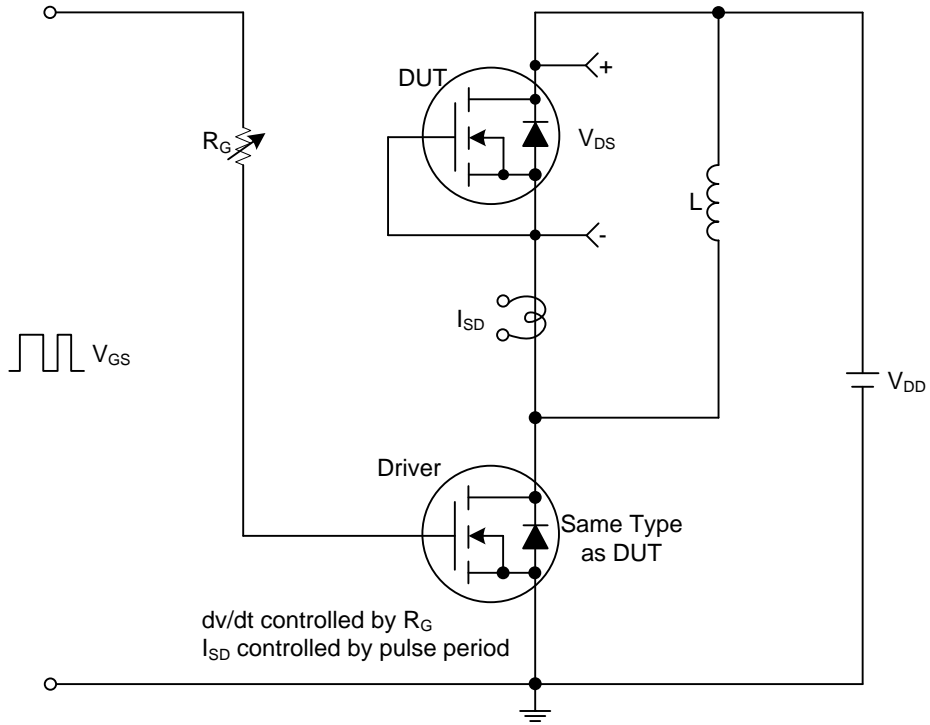
■ **Electrical Characteristics** ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	80			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=80\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-Source Leakage Current	Forward	I_{GSS}			+100	nA
	Reverse				-100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	1.0		3.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=75\text{A}$			11	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$, $I_D=75\text{A}$			13	$\text{m}\Omega$
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		5030		pF
Output Capacitance	C_{OSS}			350		pF
Reverse Transfer Capacitance	C_{RSS}			162		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DD}=40\text{V}$, $V_{GS}=10\text{V}$ $I_D=75\text{A}$, $I_G=1\text{mA}$		75		nC
Gate to Source Charge	Q_{GS}			14		nC
Gate to Drain Charge	Q_{GD}			10		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=40\text{V}$, $V_{GS}=10\text{V}$, $I_D=75\text{A}$, $R_G=25\Omega$		15		ns
Rise Time	t_R			17		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			42		ns
Fall-Time	t_F			23		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I_S				75	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				300	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_{SD}=75\text{A}$			1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0\text{V}$, $I_{SD} = 30\text{A}$,		40		ns
Reverse Recovery Charge	Q_{rr}	$di/dt = 100\text{A}/\mu\text{s}$ (Note 1)		72		nC

Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycles $\leq 2\%$.

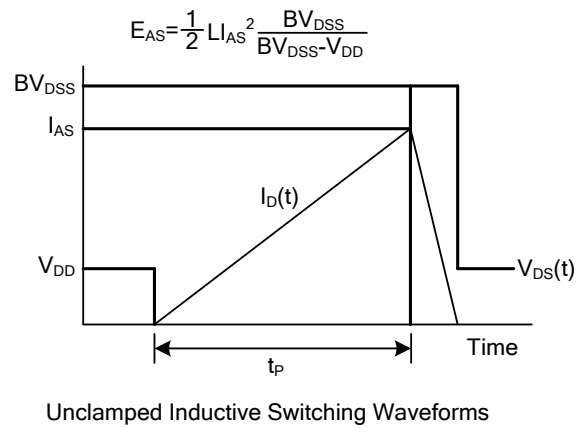
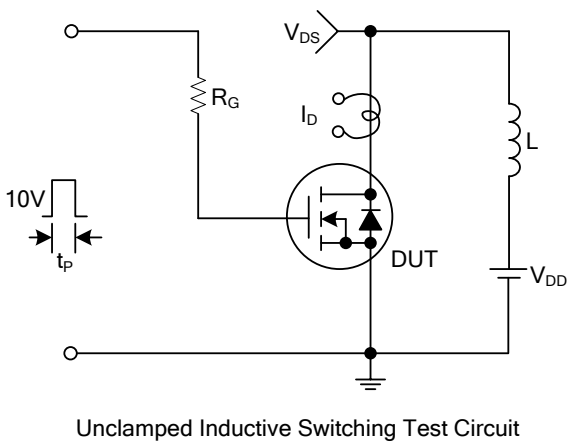
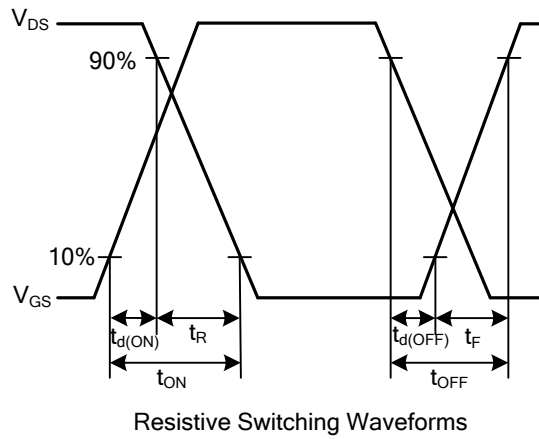
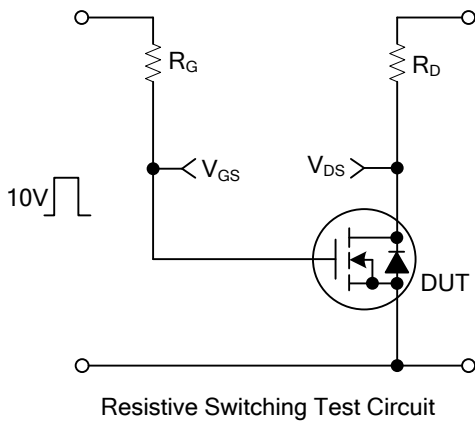
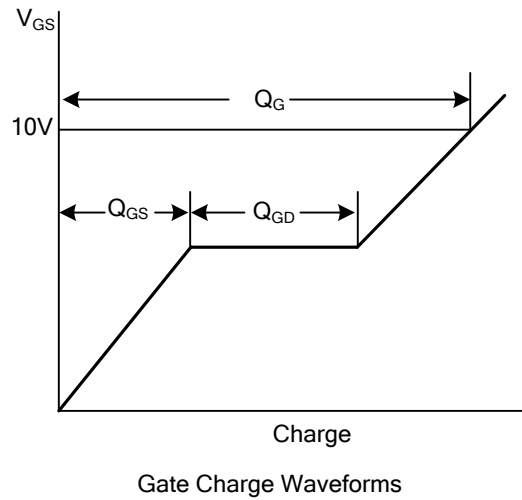
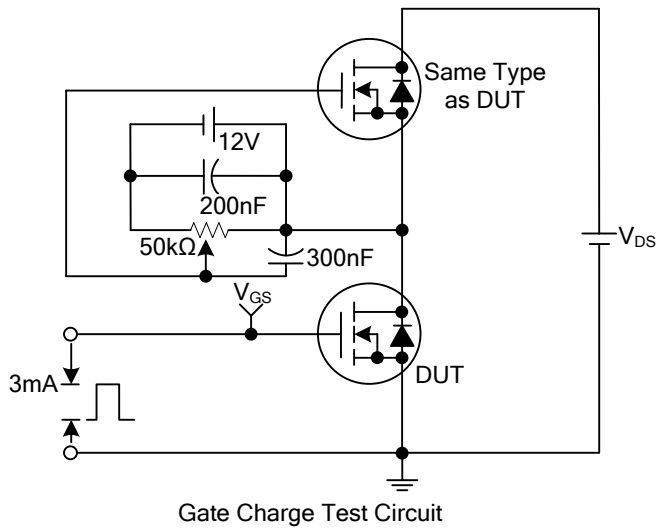
2. Essentially independent of operating temperature.

TEST CIRCUITS AND WAVEFORMS

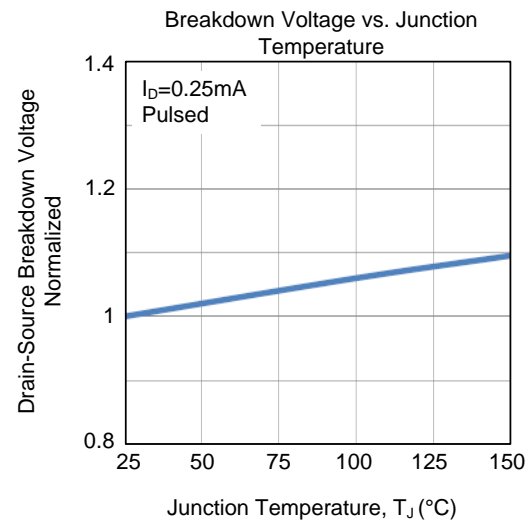
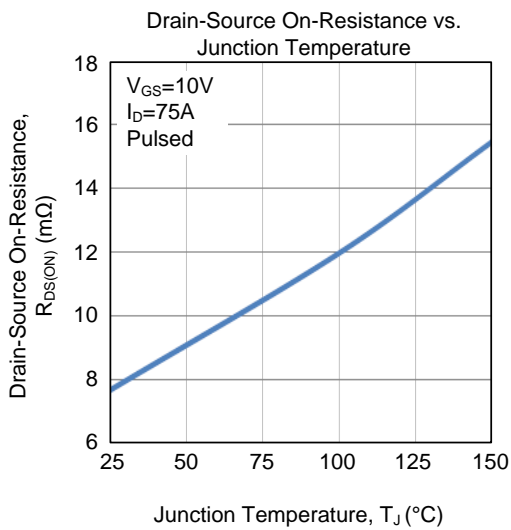
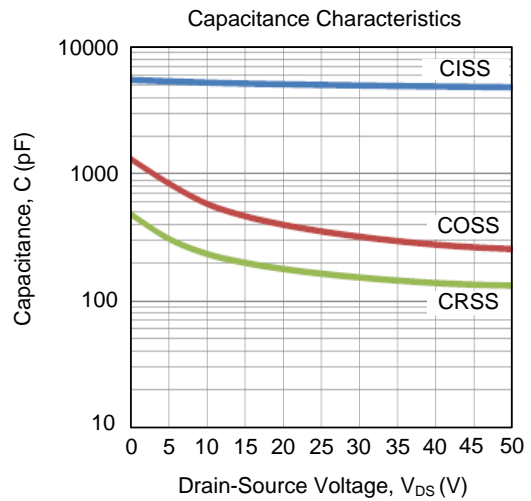
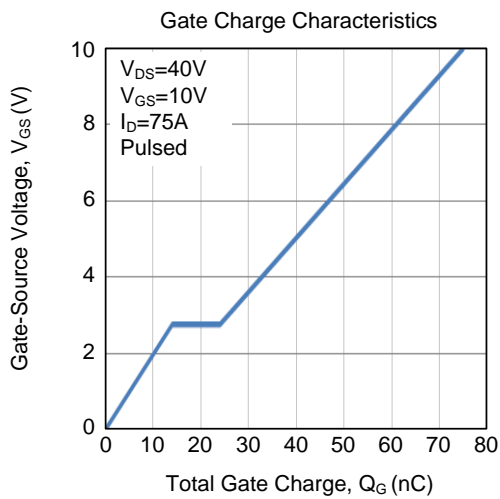
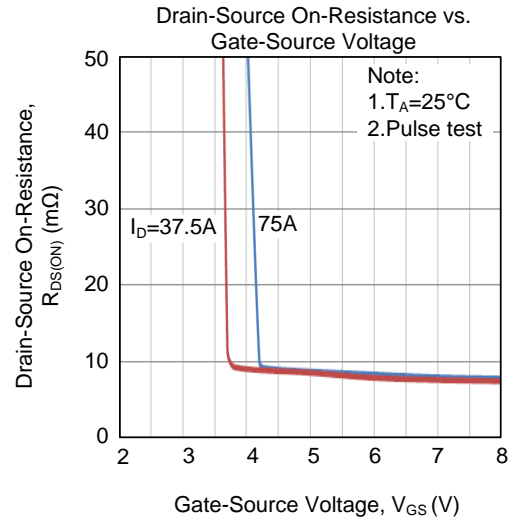
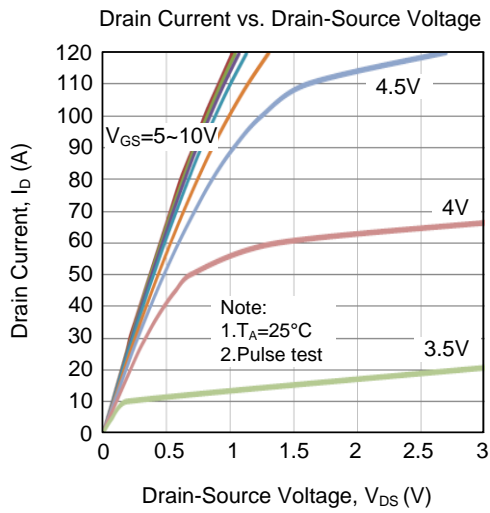


Peak Diode Recovery dv/dt Test Circuit and Waveforms

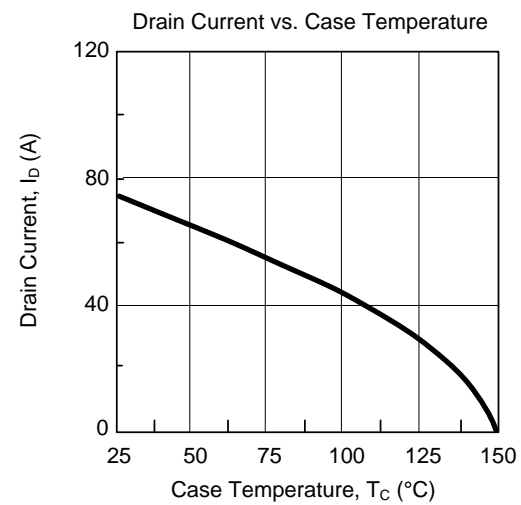
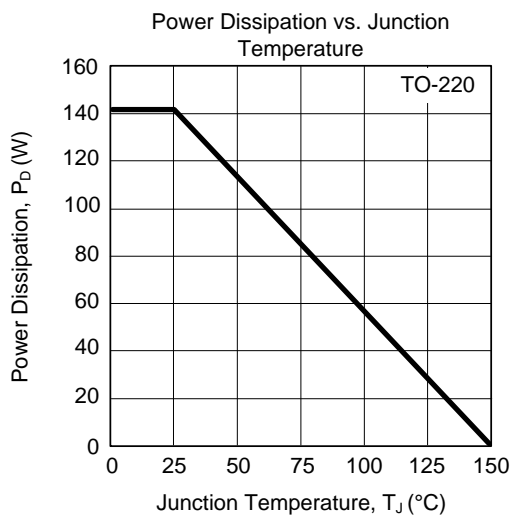
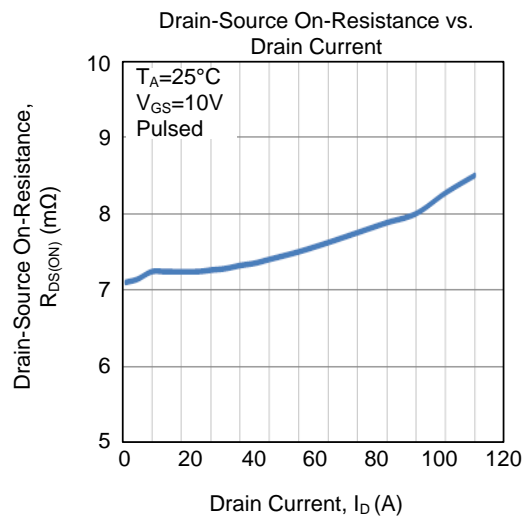
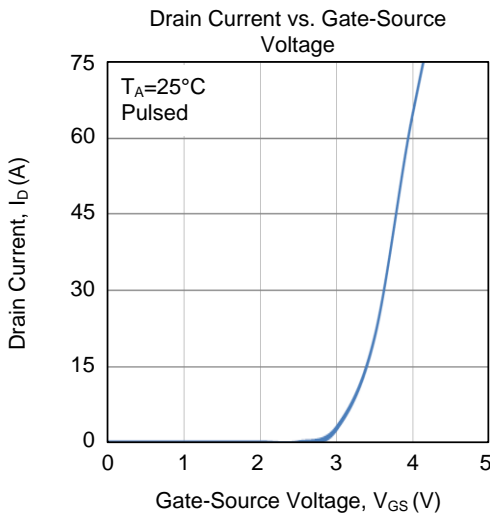
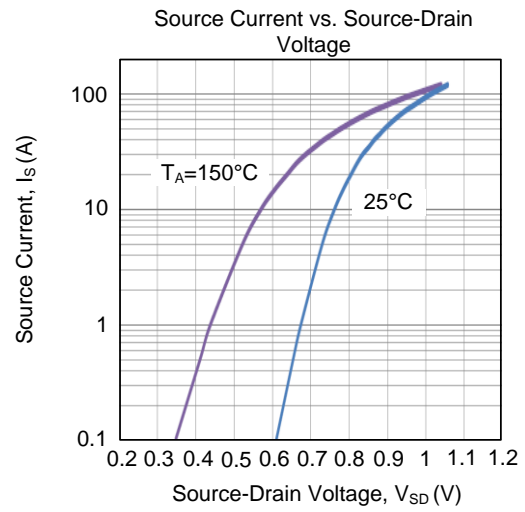
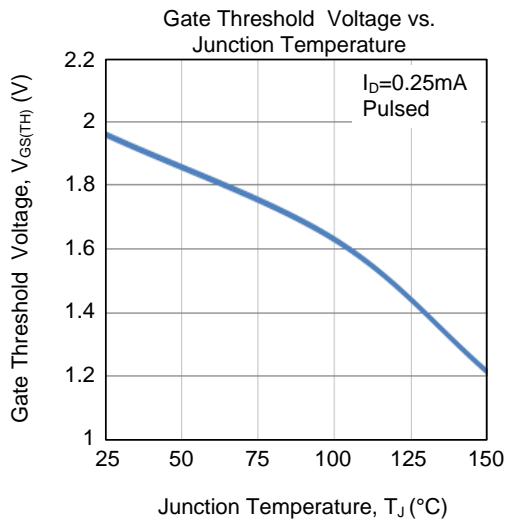
TEST CIRCUITS AND WAVEFORMS



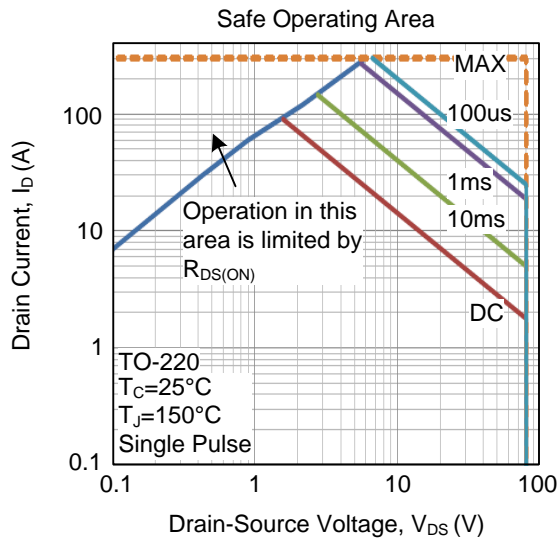
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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