



UTT80N08

Power MOSFET

80A, 80V N-CHANNEL POWER MOSFET

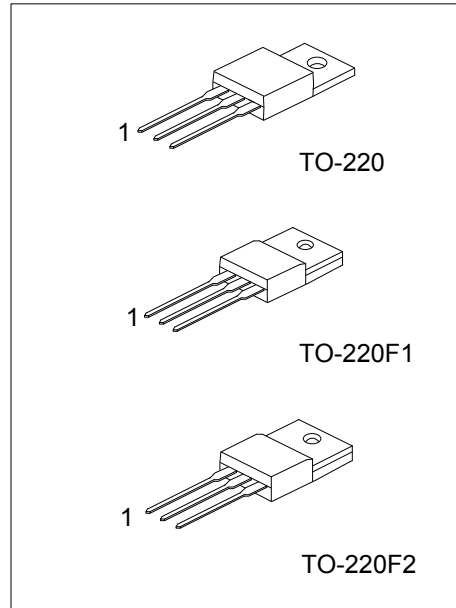
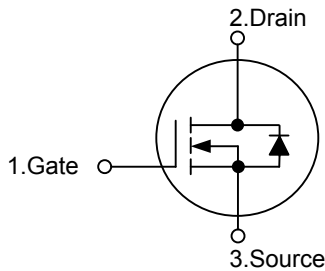
DESCRIPTION

The UTC **UTT80N08** is a N-channel MOSFET using UTC advanced technology. It can be used in applications, such as power supply (secondary synchronous rectification), industrial and primary switch etc.

FEATURES

- * $R_{DS(ON)} \leq 14m\Omega @ V_{GS}=10V, I_D=80A$
- * Trench FET Power MOSFETS Technology

SYMBOL



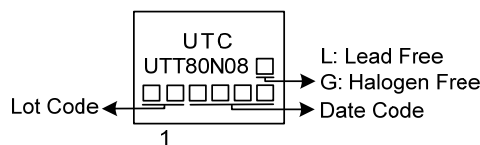
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT80N08L-TA3-T	UTT80N08G-TA3-T	TO-220	G	D	S	Tube
UTT80N08L-TF1-T	UTT80N08G-TF1-T	TO-220F1	G	D	S	Tube
UTT80N08L-TF2-T	UTT80N08G-TF2-T	TO-220F2	G	D	S	Tube

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

<p>UTT80N08G-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, TF1: TO-220F1, TF2: TO-220F2</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	80	V
Gate Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	80	A
Pulsed Drain Current	I_{DM}	160	A
Avalanche Energy, Single Pulse	E_{AS}	160	mJ
Peak Diode Recovery dv/dt (Note 4)	dv/dt	96	V/ns
Power Dissipation	TO-220	137	W
	TO-220F1/TO-220F2	38	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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. $L=0.1\text{mH}$, $I_{AS}=80\text{A}$, $V_{DD}=25\text{V}$, $R_G=20\Omega$, Starting $T_J=25^\circ\text{C}$.

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-220F1	62.5	$^\circ\text{C/W}$
	TO-220F2		
Junction to Case	TO-220	0.91	$^\circ\text{C/W}$
	TO-220F1/TO-220F2	3.29	

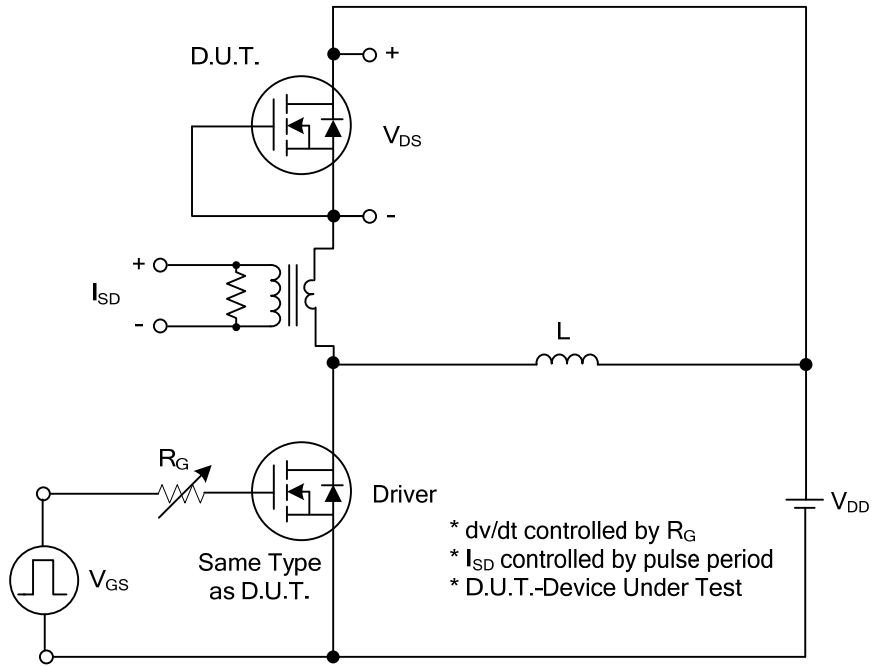
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	80			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V		±1	±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	2.1		4.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =80A			14	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		4400		pF
Output Capacitance	C _{OSS}			430		pF
Reverse Transfer Capacitance	C _{RSS}			230		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DD} =40V, V _{GS} =0~10V, I _D =80A		90		nC
Gate to Source Charge	Q _{GS}			15		nC
Gate to Drain Charge	Q _{GD}			22		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =40V, V _{GS} =10V, I _D =80A R _G =2.2Ω		15		ns
Rise Time	t _R			16		ns
Turn-OFF Delay Time	t _{D(OFF)}			40		ns
Fall-Time	t _F			17		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				80	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				160	A
Drain-Source Diode Forward Voltage	V _{SD}	I _{SD} =80A		0.9	1.3	V
Reverse Recovery Time (Note 1)	t _{rr}	V _{GS} =0V, I _S =6.0A,		51		ns
Reverse Recovery Charge	Q _{rr}	dI _F /dt=100A/μs (Note1)		98		nC

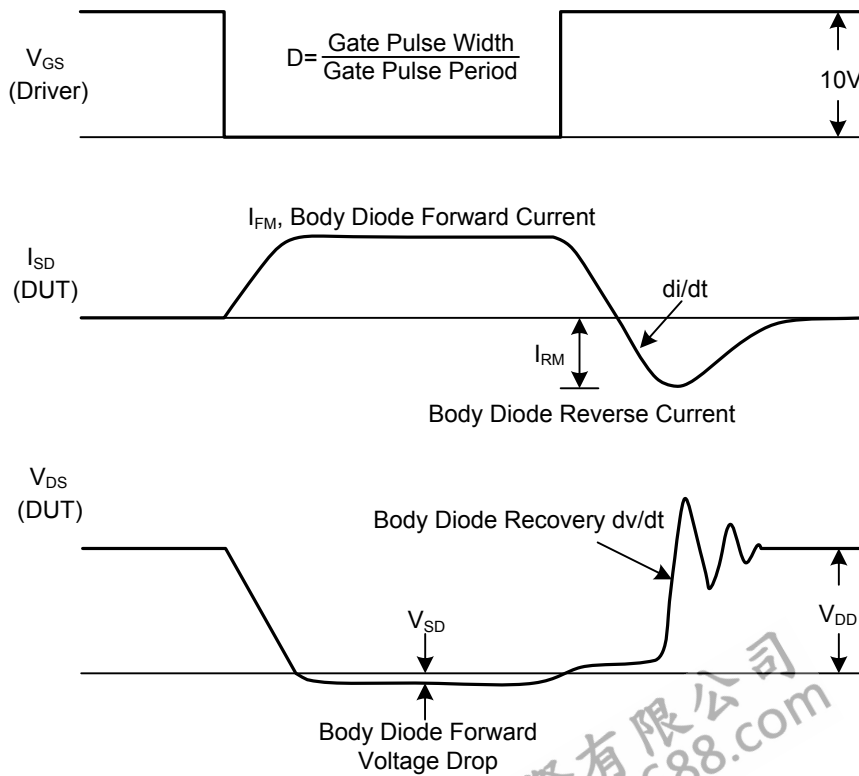
Notes: 1. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

TEST CIRCUITS AND WAVEFORMS

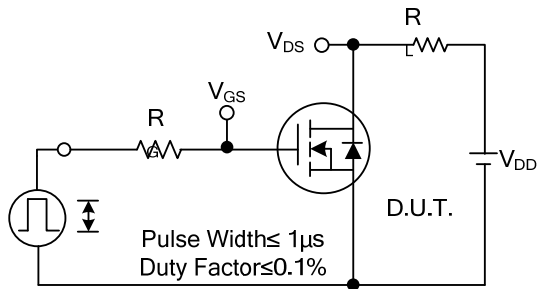


Peak Diode Recovery dv/dt Test Circuit

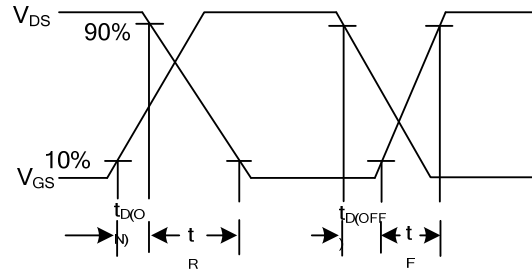


Peak Diode Recovery dv/dt Waveforms

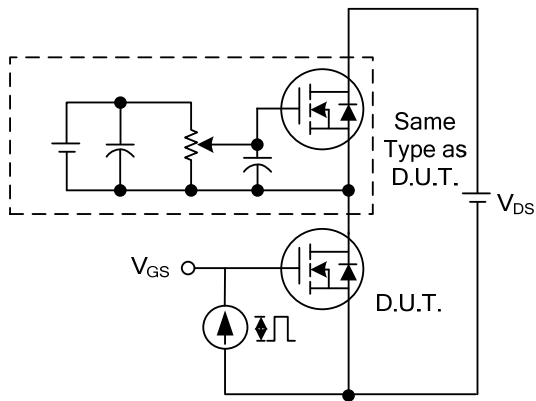
TEST CIRCUITS AND WAVEFORMS



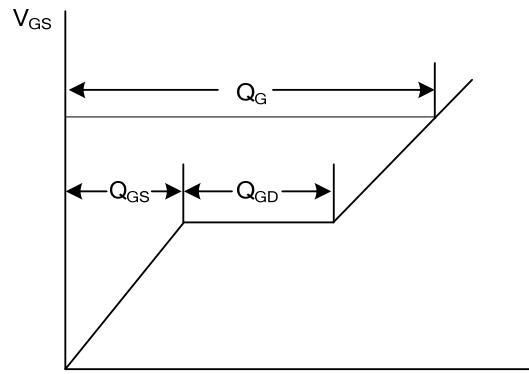
Switching Test Circuit



Switching Waveforms

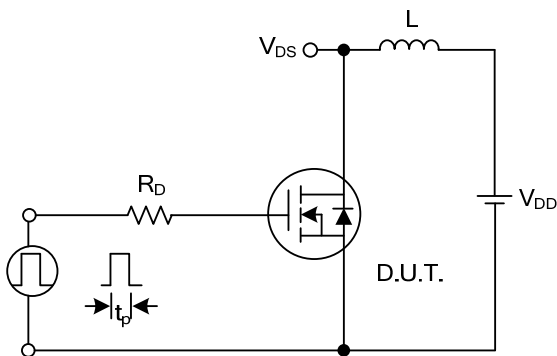


Gate Charge Test Circuit

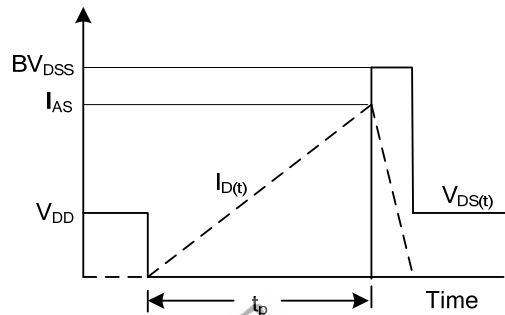


Charge

Gate Charge Waveform

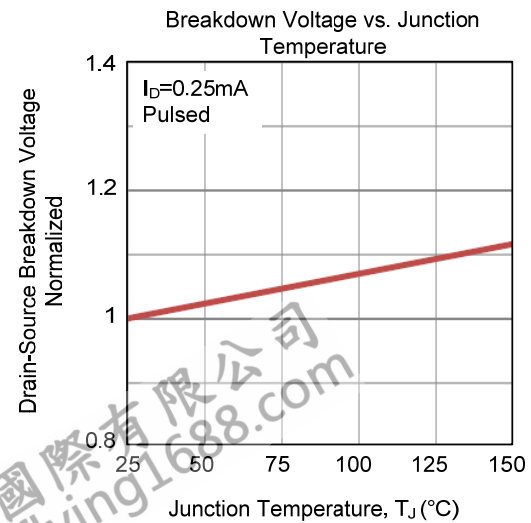
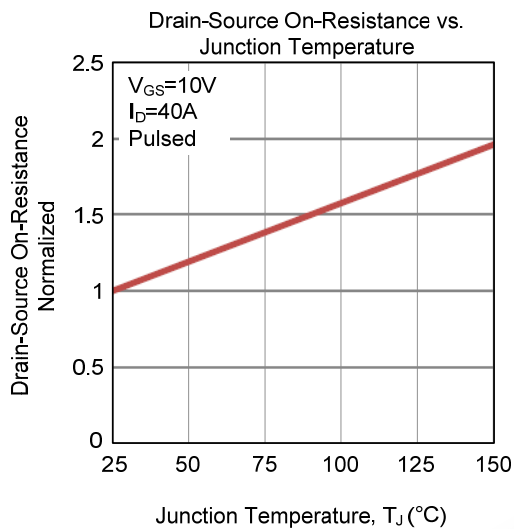
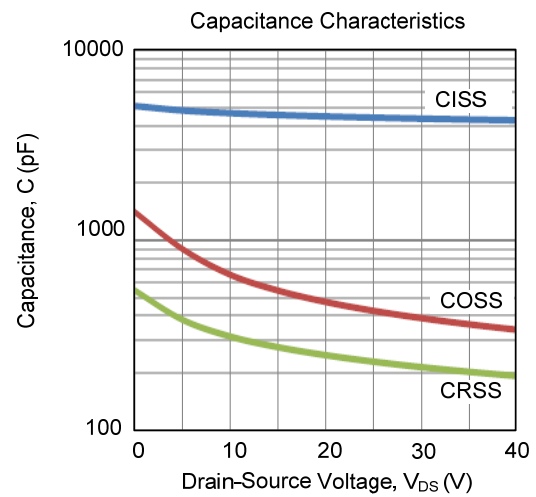
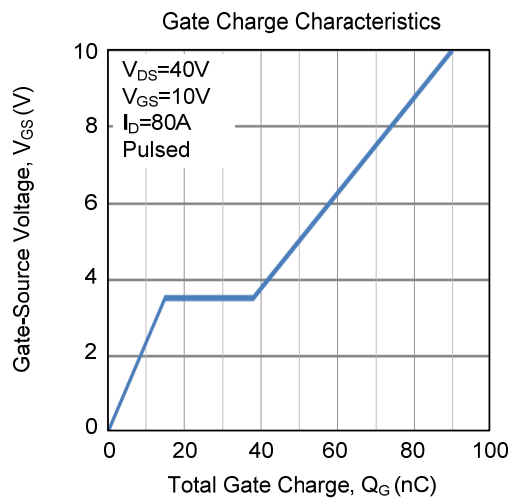
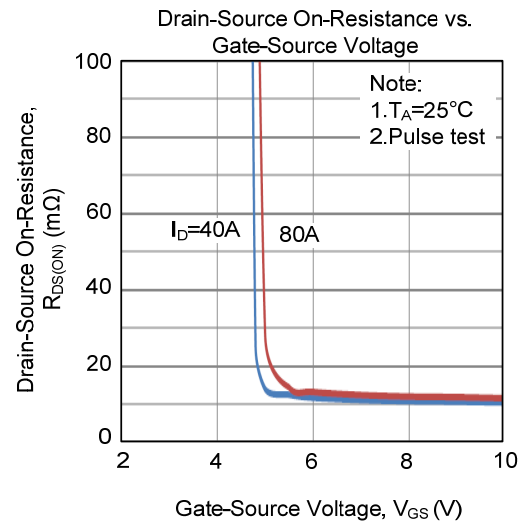
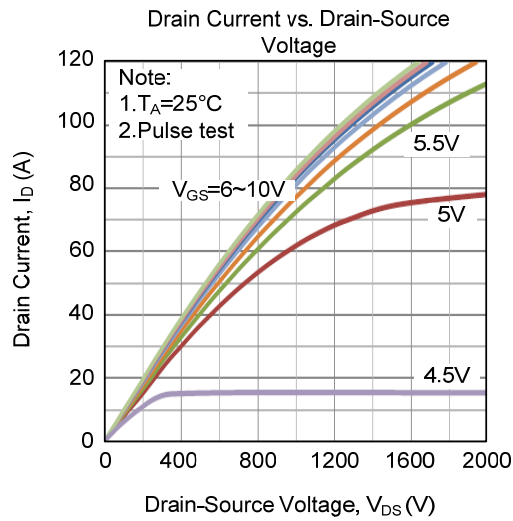


Unclamped Inductive Switching Test Circuit

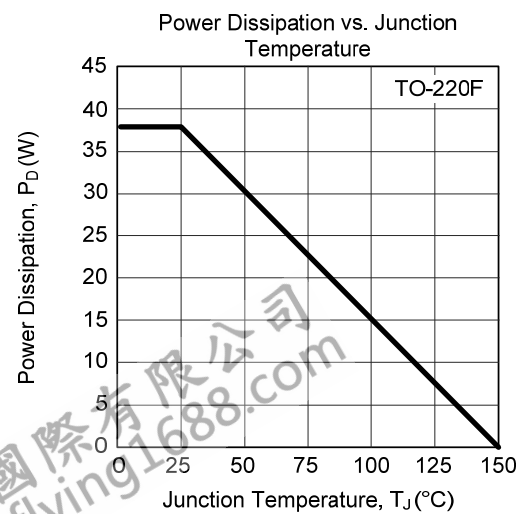
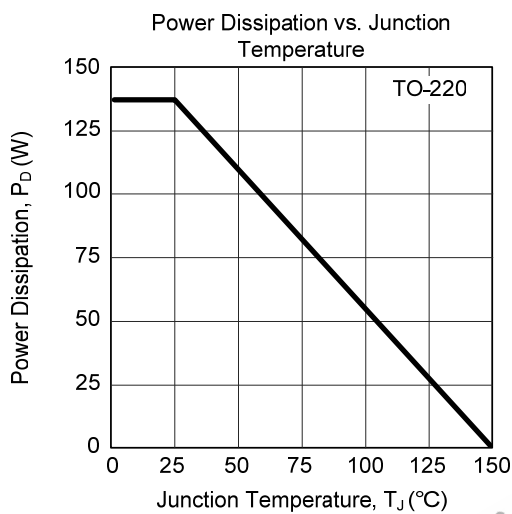
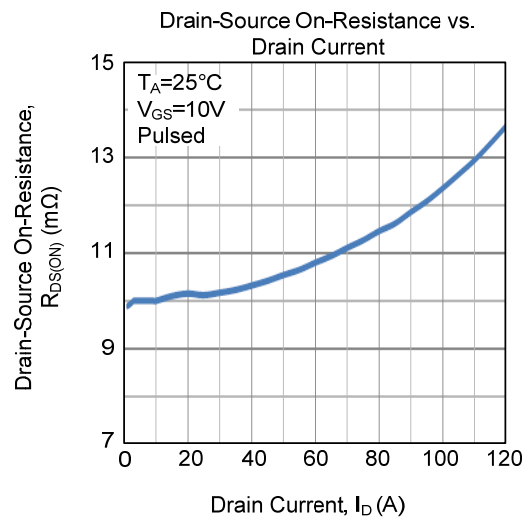
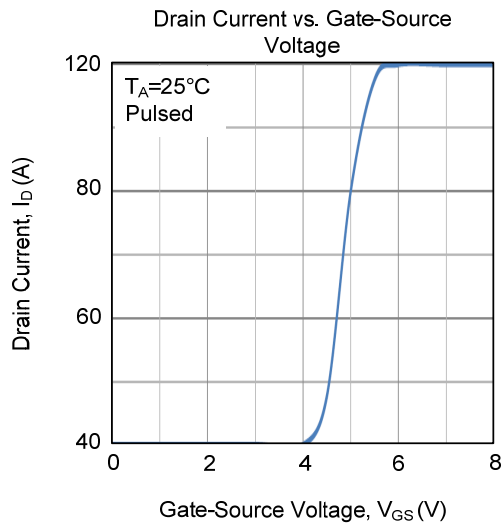
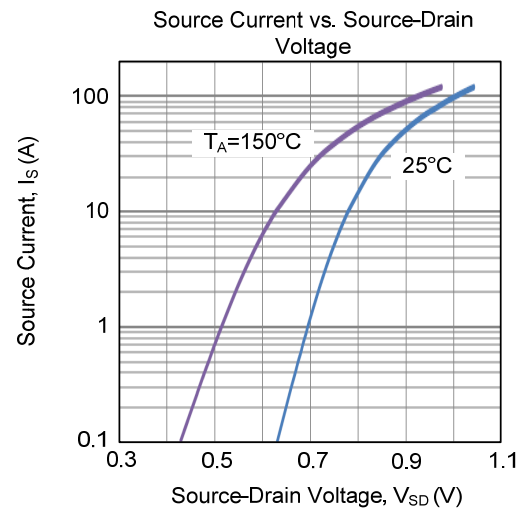
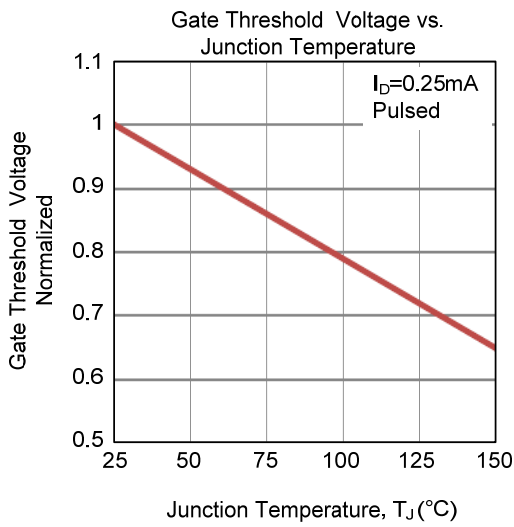


Unclamped Inductive Switching Waveforms

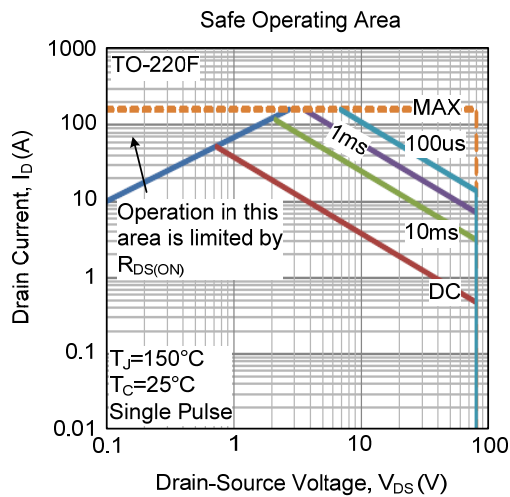
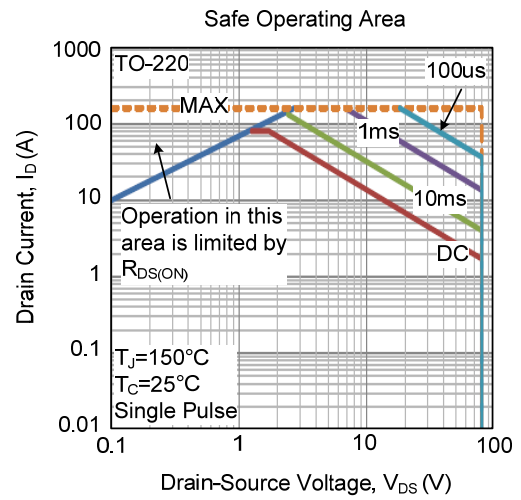
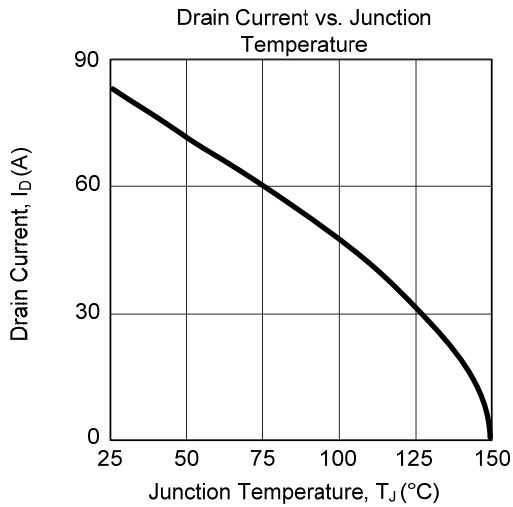
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (Cont.)



TYPICAL CHARACTERISTICS (Cont.)



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