



UTT36N10

Power MOSFET

36A, 100V N-CHANNEL POWER MOSFET

DESCRIPTION

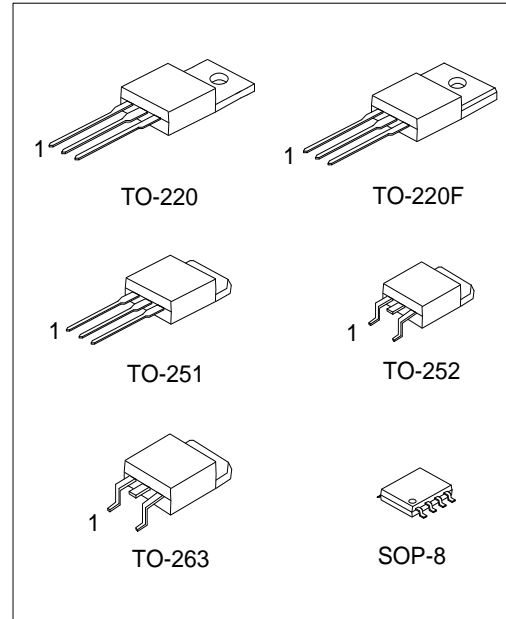
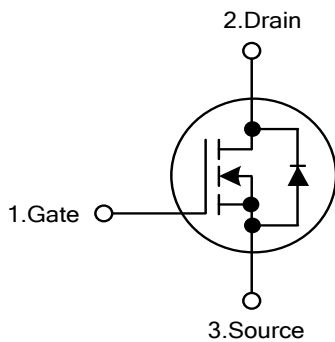
The UTC **UTT36N10** is a N-channel mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and high switching speed.

The UTC **UTT36N10** is suitable for high voltage synchronous rectifier and DC/DC converters, etc.

FEATURES

* High Switching Speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT36N10L-TA3-T	UTT36N10G-TA3-T	TO-220	G	D	S	-	-	-	-	-	Tube
UTT36N10L-TF3-T	UTT36N10G-TF3-T	TO-220F	G	D	S						Tube
UTT36N10L-TM3-T	UTT36N10G-TM3-T	TO-251	G	D	S						Tube
UTT36N10L-TN3-R	UTT36N10G-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UTT36N10L-TQ2-T	UTT36N10G-TQ2-T	TO-263	G	D	S	-	-	-	-	-	Tube
UTT36N10L-TQ2-R	UTT36N10G-TQ2-R	TO-263	G	D	S	-	-	-	-	-	Tape Reel
UTT36N10L-S08-R	UTT36N10G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

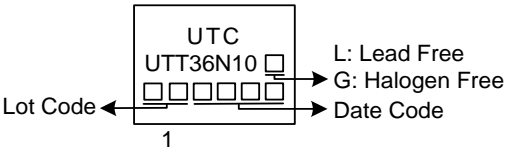
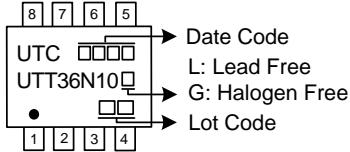
Note: Pin Assignment: G: Gate D: Drain S: Source

<p>UTT36N10G-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA3: TO-220, TF3: TO-220F, TM3: TO-251</p> <p>TN3: TO-252, TQ2: TO-263, S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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UTT36N10

Power MOSFET

MARKING

TO-220 / TO-220F / TO-251 / TO-252 / TO-263	SOP-8
 <p>UTC UTT36N10</p> <p>Lot Code</p> <p>L: Lead Free G: Halogen Free Date Code</p> <p>1</p>	 <p>UTC UTT36N10</p> <p>Date Code L: Lead Free G: Halogen Free Lot Code</p>

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	100	V
Gate-Source Voltage		V _{GSS}	±20	V
Drain Current	Continuous (V _{GS} =10V) T _C =25°C	I _D	36	A
	Pulsed	I _{DM}	72	A
Single Pulsed Avalanche Energy		E _{AS}	33.8 (Note 3)	mJ
Power Dissipation	TO-220/TO-263	P _D	125	W
	TO-220F		36	W
	TO-251/TO-252		44	W
	SOP-8		6	W
Junction Temperature		T _J	+150	°C
Storage Temperature		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 maximum junction temperature.

3. L=0.1mH, I_{AS}=26A, V_{DD}= 50V, R_G=25Ω, Starting T_J=25°C.

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

■ THERMAL DATA

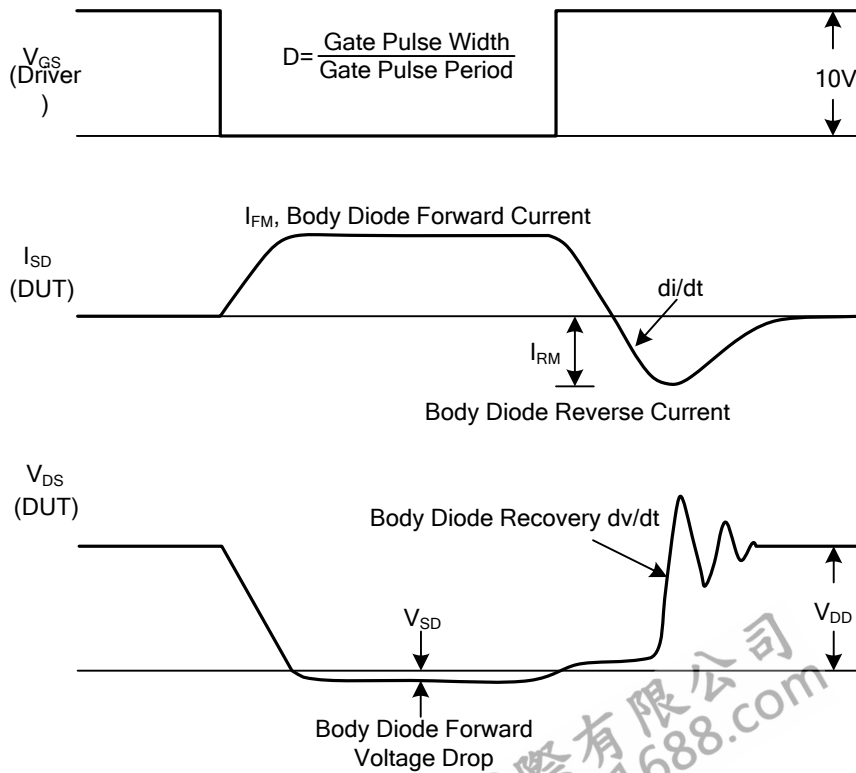
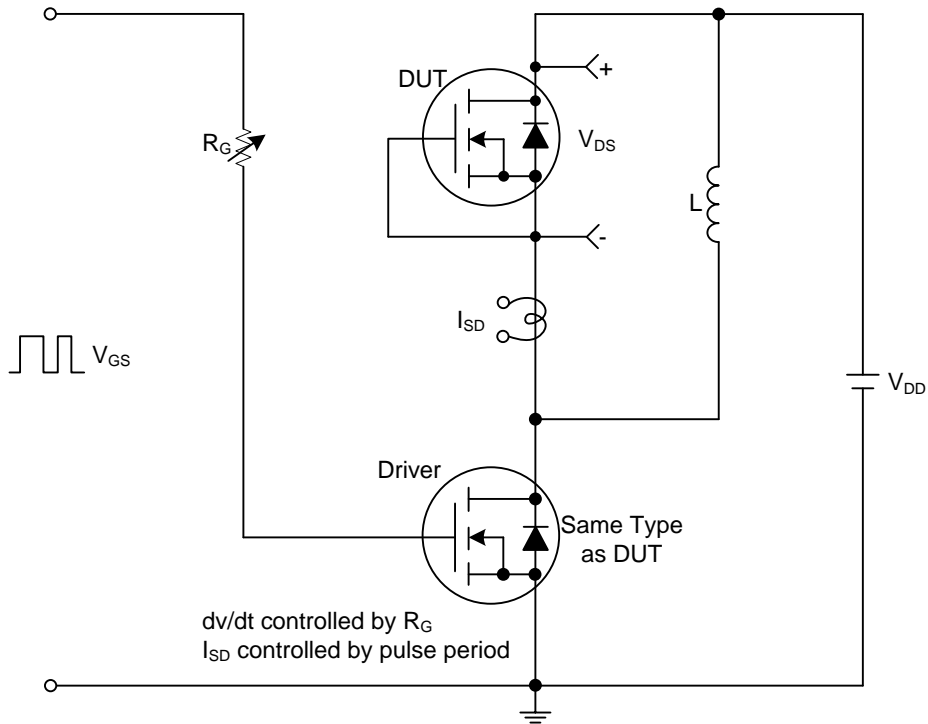
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-220F TO-263	θ _{JA}	62.5	°C/W
	TO-251/TO-252		110	°C/W
	SOP-8		100	°C/W
	TO-220/TO-263		1	°C/W
Junction to Case	TO-220F	θ _{JC}	3.47	°C/W
	TO-251/TO-252		2.85 (Note)	°C/W
	SOP-8		20.8 (Note)	°C/W

Note: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

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

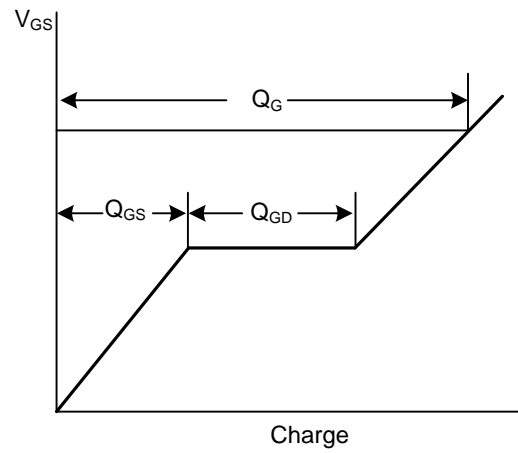
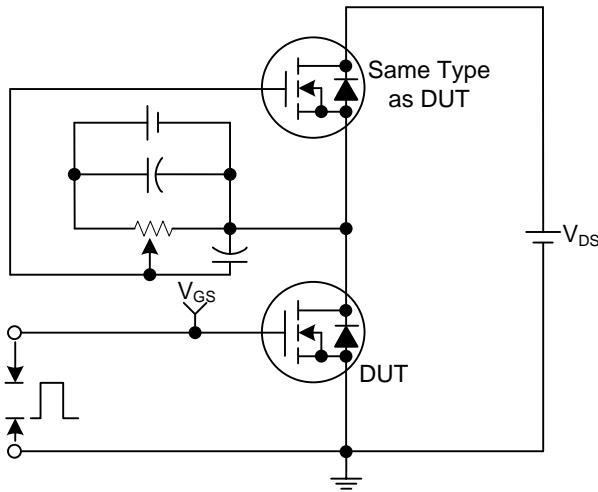
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	100			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=100\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate- Source Leakage Current	Forward	I_{GSS}			+100	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	$R_{DS(ON)}$	$V_{GS}=10\text{V}$, $I_D=30\text{A}$			44	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}$, $I_D=15\text{A}$			48	$\text{m}\Omega$
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1.0\text{MHz}$		2950		pF
Output Capacitance	C_{OSS}			152		pF
Reverse Transfer Capacitance	C_{RSS}			124		pF
SWITCHING PARAMETERS						
Total Gate Charge at 10V	Q_G	$V_{DD}=80\text{V}$, $I_D=36\text{A}$, $V_{GS}=10\text{V}$, $I_G=1\text{mA}$		63		nC
Gate to Source Charge	Q_{GS}			7		nC
Gate to Drain Charge	Q_{GD}			14		nC
Turn-ON Time	t_{ON}	$V_{DD}=50\text{V}$, $I_D=36\text{A}$, $V_{GS}=10\text{V}$, $R_G=3\Omega$		10		ns
Turn-ON Delay Time	$t_{D(ON)}$			18		ns
Rise Time	t_R			46		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			20		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$I_{SD}=36\text{A}$			1.4	V

TEST CIRCUITS AND WAVEFORMS



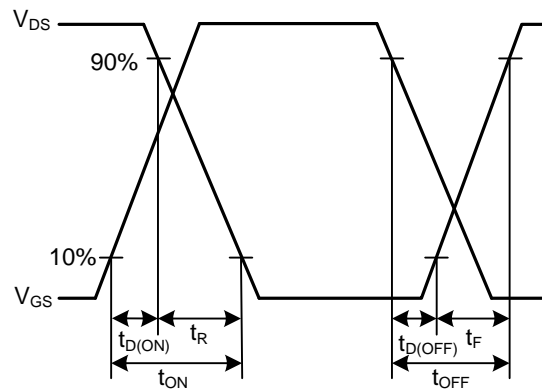
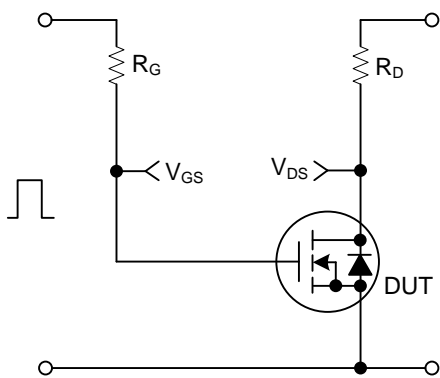
Peak Diode Recovery dv/dt Test Circuit and Waveforms

TEST CIRCUITS AND WAVEFORMS



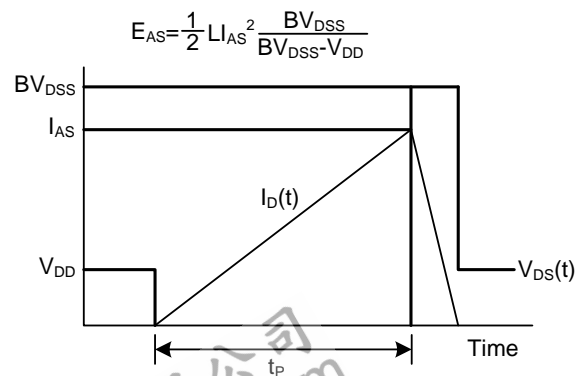
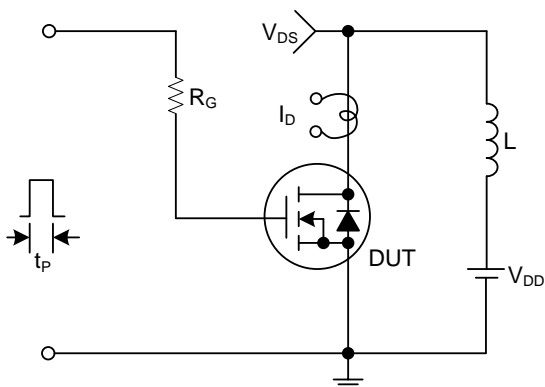
Gate Charge Test Circuit

Gate Charge Waveforms



Resistive Switching Test Circuit

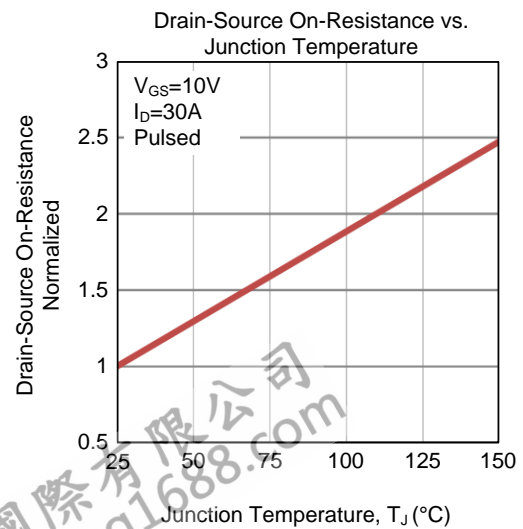
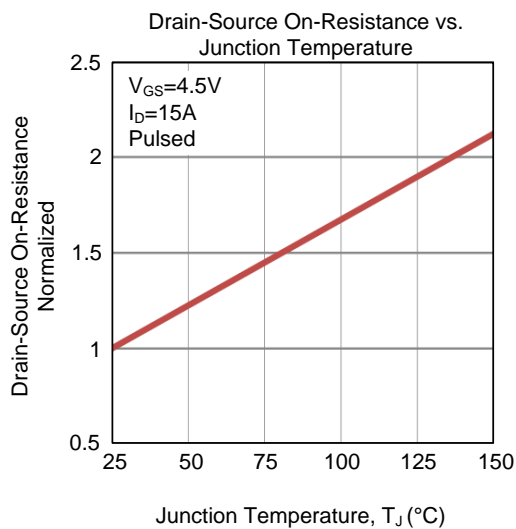
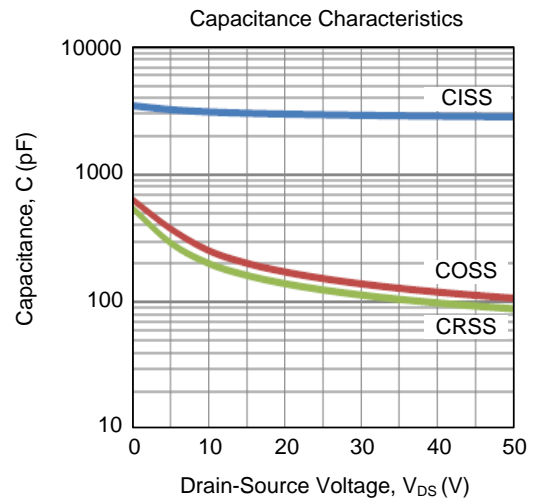
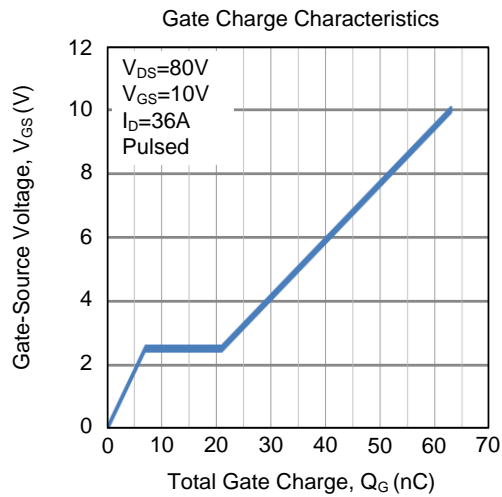
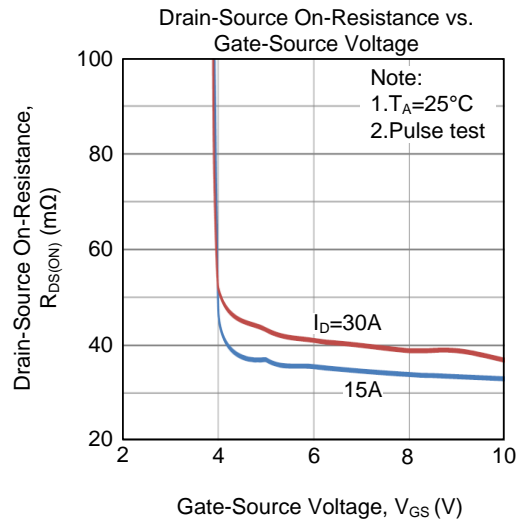
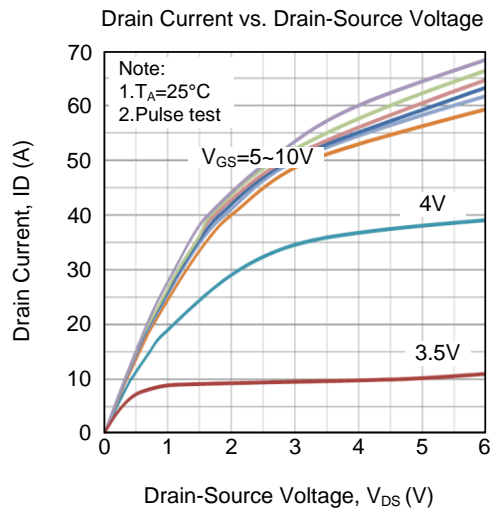
Resistive Switching Waveforms



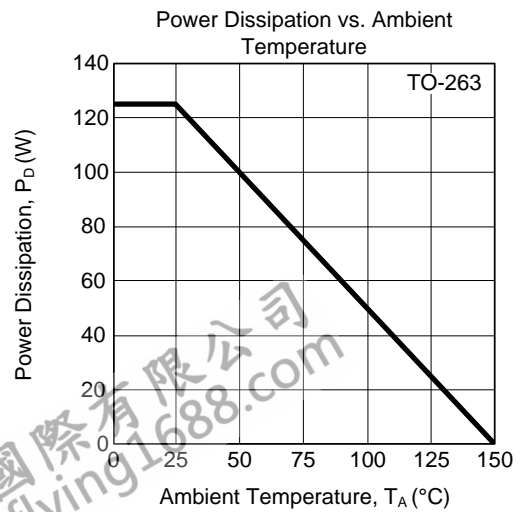
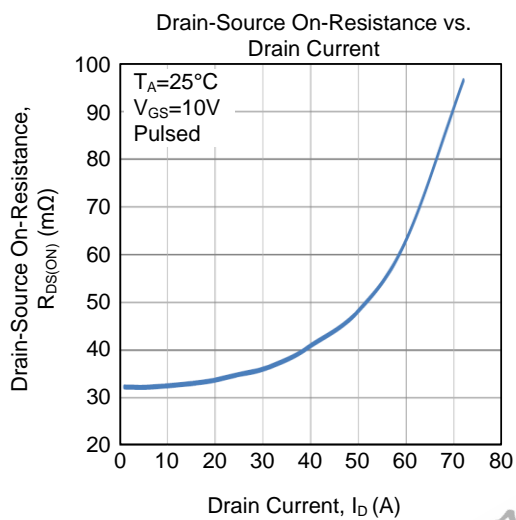
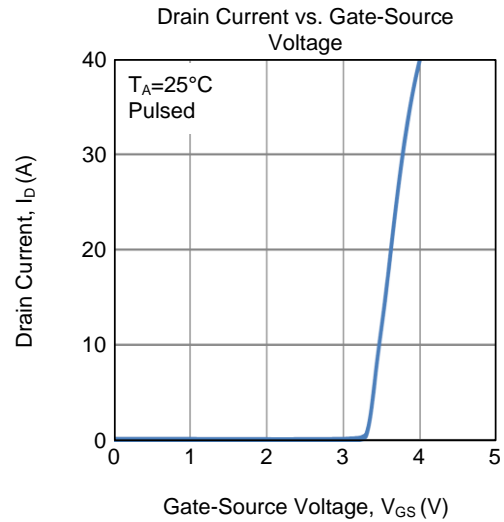
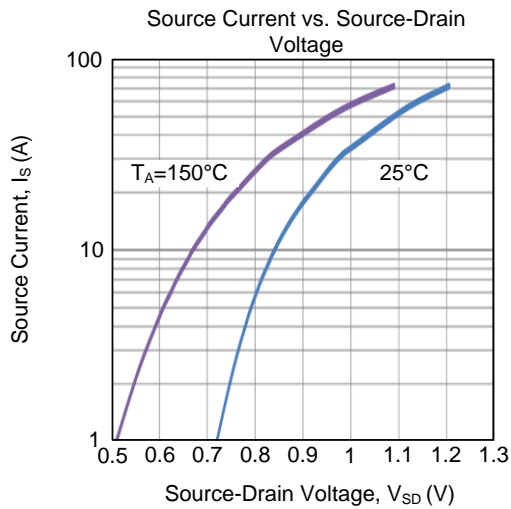
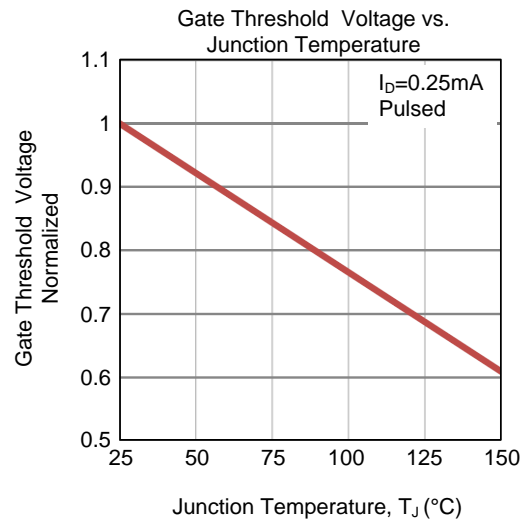
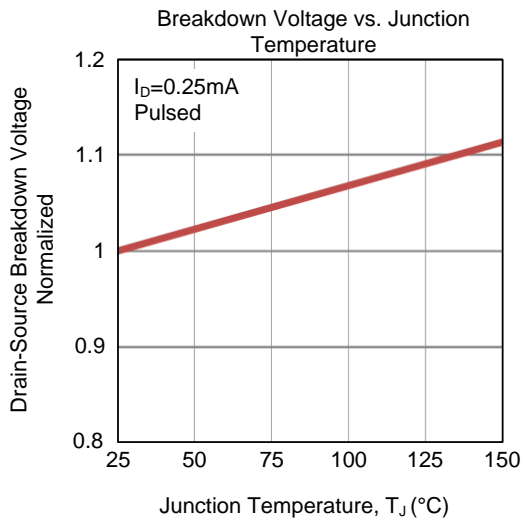
Unclamped Inductive Switching Test Circuit

Unclamped Inductive Switching Waveforms

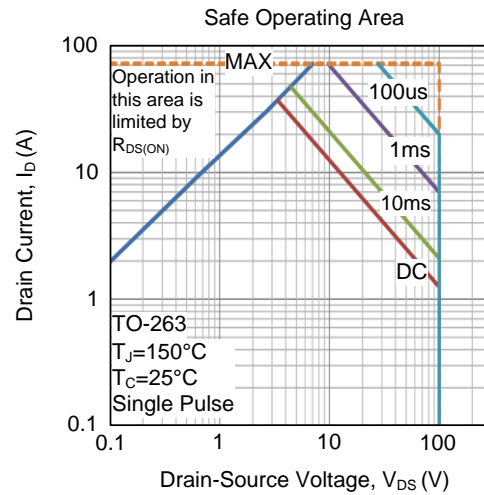
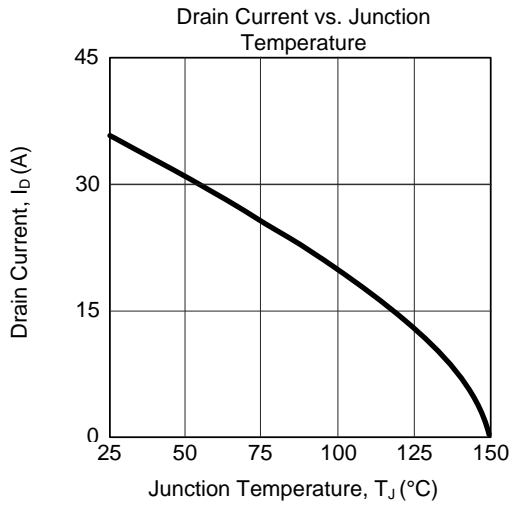
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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