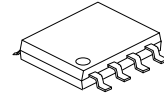


**UTT48NN06H****POWER MOSFET****48A, 60V N-CHANNEL
POWER MOSFET****DESCRIPTION**

The UTC **UTT48NN06H** 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 **UTT48NN06H** is suitable for high voltage synchronous rectifier and DC/DC converters, etc.



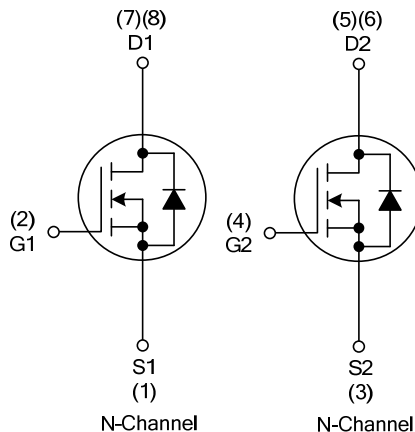
SOP-8

FEATURES

* $R_{DS(ON)} \leq 18 \text{ m}\Omega$ @ $V_{GS}=10\text{V}$, $I_D=16\text{A}$

* High Switching Speed

* High Cell Density Trench Technology

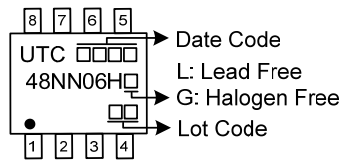
SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT48NN06HL-S08-R	UTT48NN06HG-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

UTT48NN06HG-S08-R		(1) Packing Type	(1) R: Tape Reel
		(2) Package Type	(2) S08: SOP-8
		(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	60	V
Gate-Source Voltage			V _{GSS}	±20	V
Drain Current	Continuous	Total	I _D	16	A
		Single		8	A
	Pulsed (Note 2)	Single	I _{DM}	48	A
Avalanche Energy	Single Pulsed (Note 3)		E _{AS}	125	mJ
Peak Diode Recovery dv/dt (Note 4)			dv/dt	3.9	V/nS
Power Dissipation (Note 5)			P _D	5	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 maximum junction temperature.
3. L = 10mH, I_{AS} = 5.0A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C.
4. I_{SD} ≤ 30A, di/dt ≤ 200A/μs, V_{DD} ≤ V_{(BR)DSS}, T_J ≤ 25°C.
5. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ _{JA}	125	°C/W
Junction to Case	θ _{JC}	25	°C/W

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

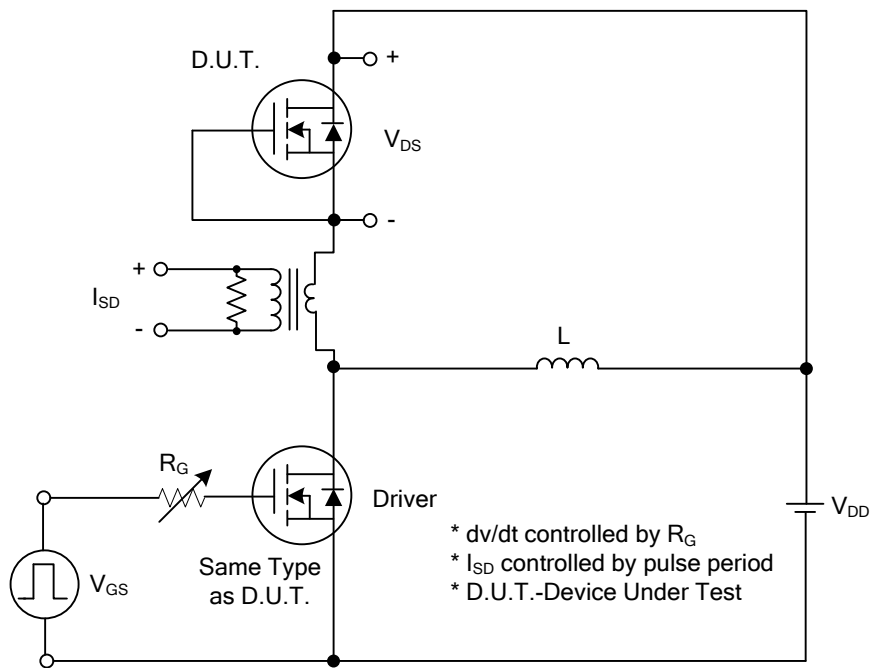
■ ELECTRICAL CHARACTERISTICS (T_J = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	I _D =250μA, V _{GS} =0V	60			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} =+20V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-20V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Static Drain-Source On-State Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =16A			18	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHz		2179		pF
Output Capacitance		C _{OSS}			170		pF
Reverse Transfer Capacitance		C _{RSS}			140		pF
SWITCHING PARAMETERS							
Total Gate Charge (Note 1)		Q _G	V _{DS} =48V, V _{GS} =10V, I _D =16A (Note 1, 2)		59		nC
Gate to Source Charge		Q _{GS}			13		nC
Gate to Drain Charge		Q _{GD}			21		nC
Turn-on Delay Time (Note 1)		t _{D(ON)}	V _{DS} =30V, V _{GS} =10V, I _D =16A, R _G =3Ω (Note 1, 2)		11		ns
Rise Time		t _R			19		ns
Turn-off Delay Time		t _{D(OFF)}			30		ns
Fall-Time		t _F			20		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I _S				16	A
Maximum Body-Diode Pulsed Current		I _{SM}				48	A
Drain-Source Diode Forward Voltage (Note 1)		V _{SD}	I _S =16A, V _{GS} =0V			1.4	V
Reverse Recovery Time (Note 1)		t _{rr}	I _S =30A, V _{GS} =0V,		21		nS
Reverse Recovery Charge		Q _{rr}	dI/dt=100A/μs		39		nC

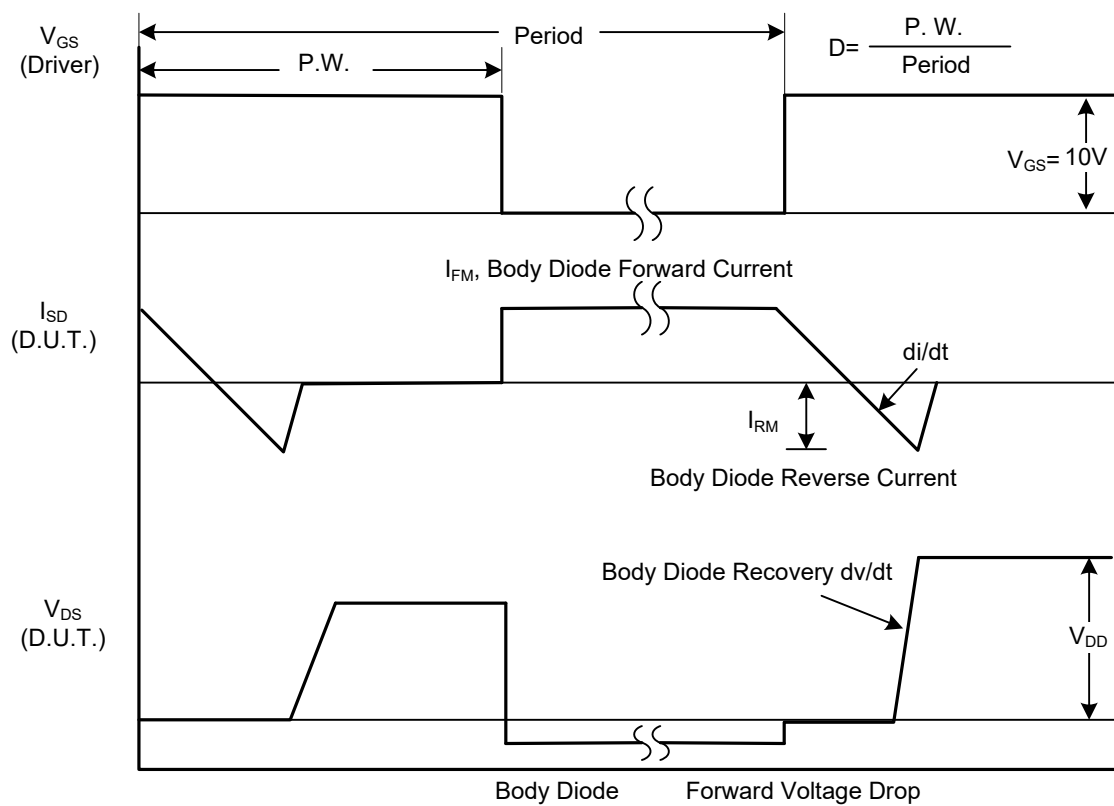
Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

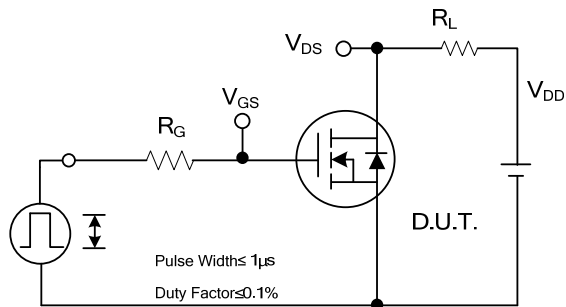


Peak Diode Recovery dv/dt Test Circuit

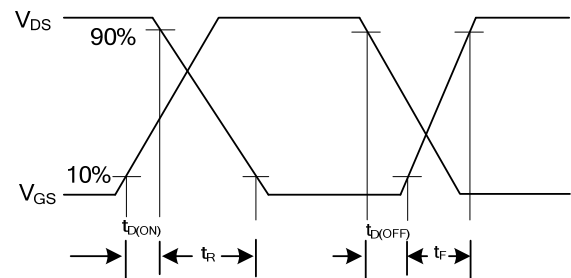


Peak Diode Recovery dv/dt Waveforms

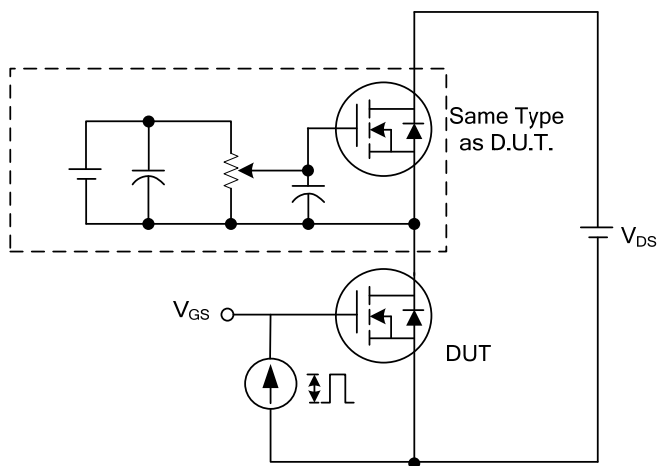
■ TEST CIRCUITS AND WAVEFORMS



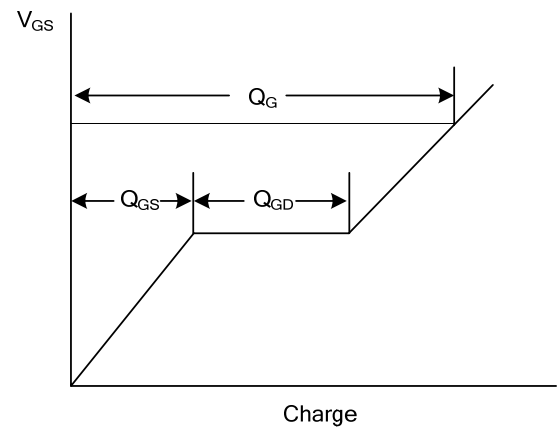
Switching Test Circuit



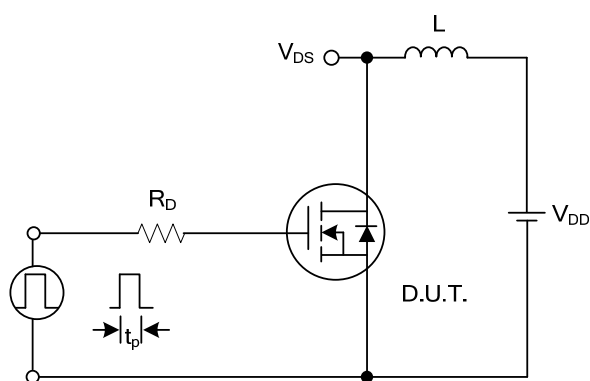
Switching Waveforms



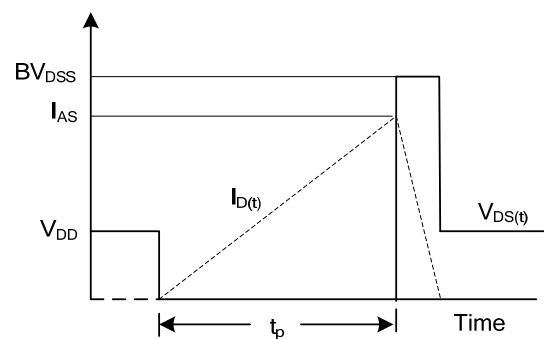
Gate Charge Test Circuit



Gate Charge Waveform

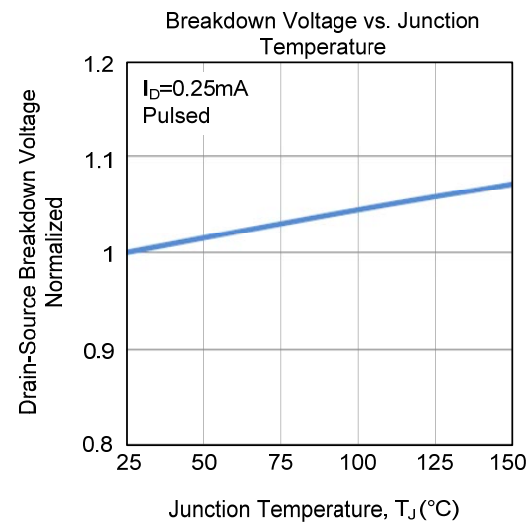
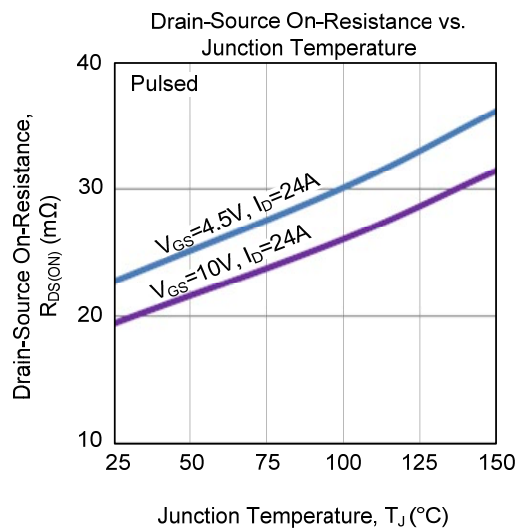
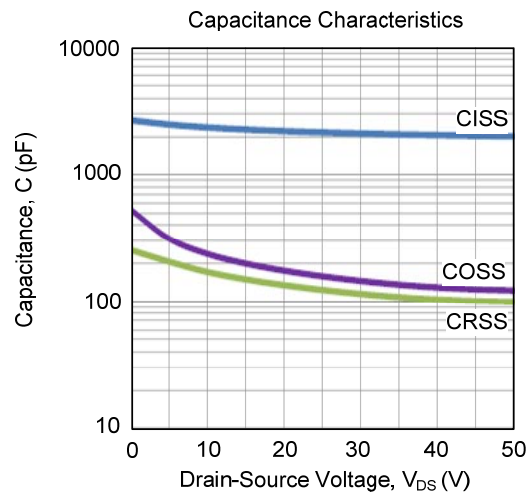
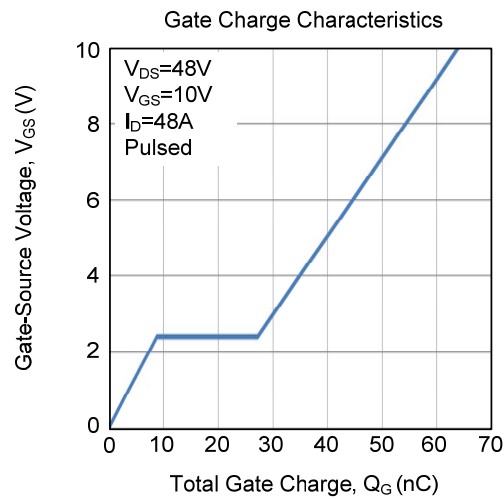
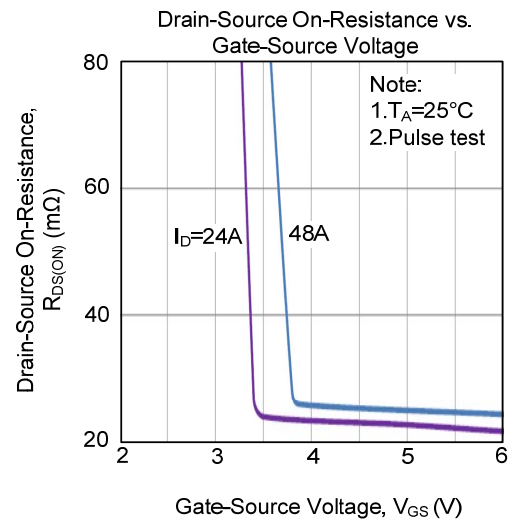
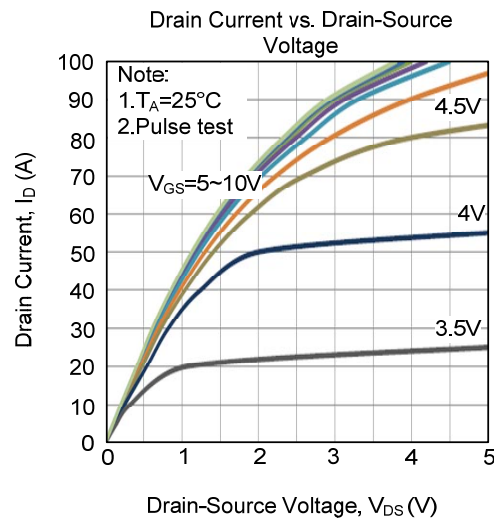


Unclamped Inductive Switching Test Circuit

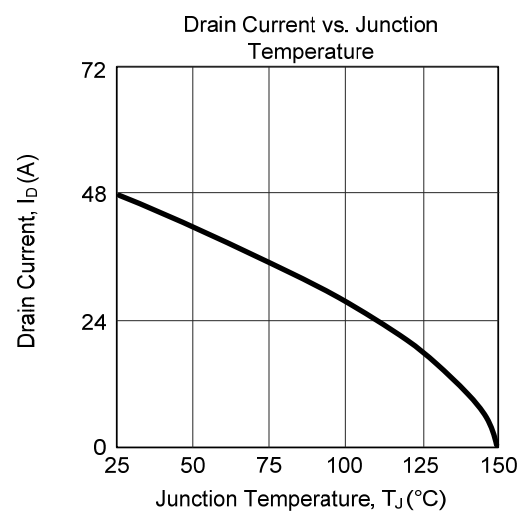
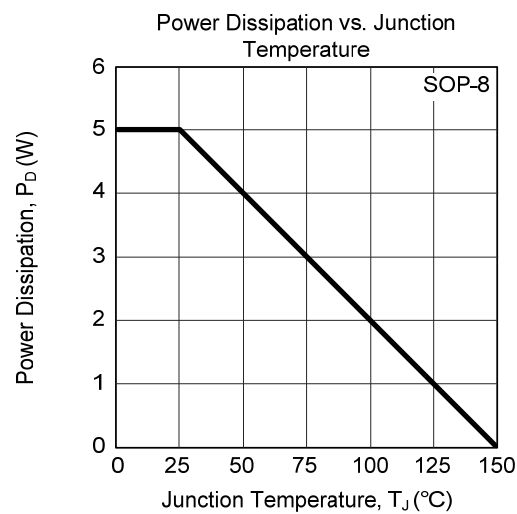
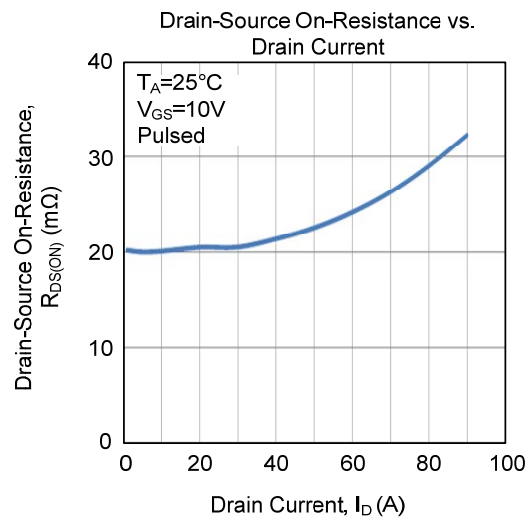
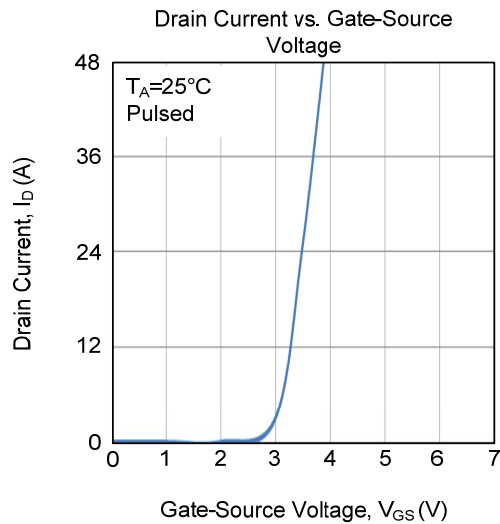
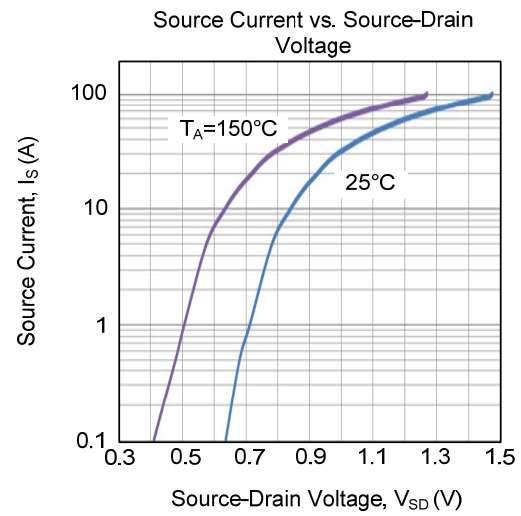
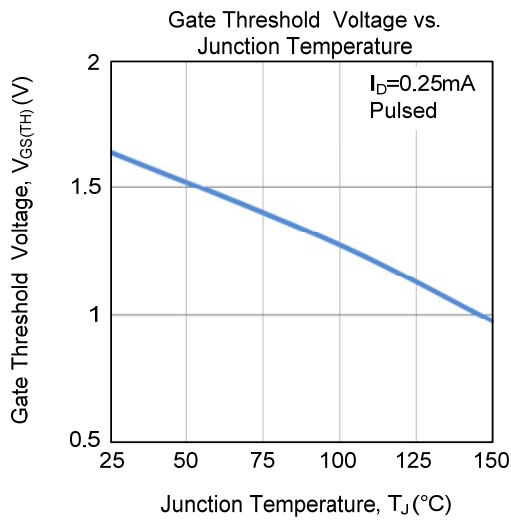


Unclamped Inductive Switching Waveforms

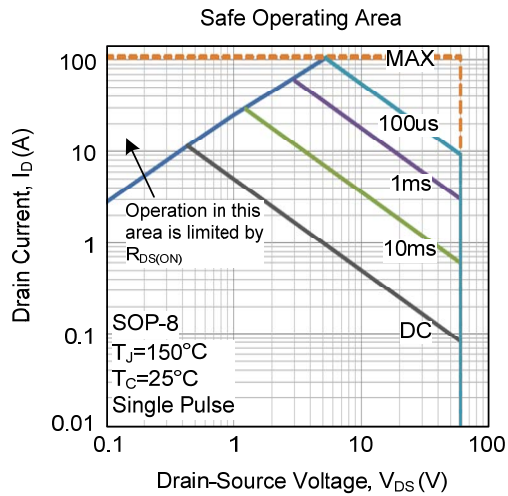
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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