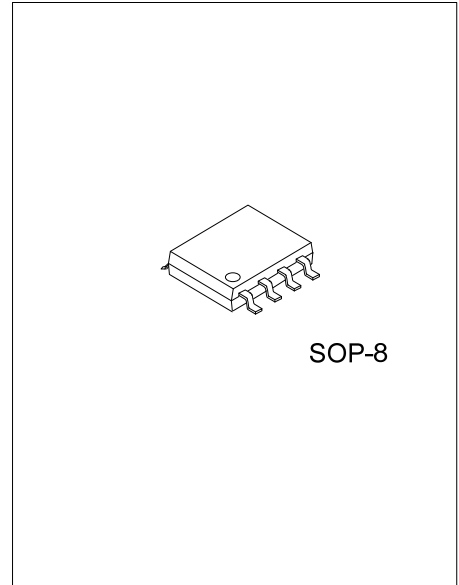
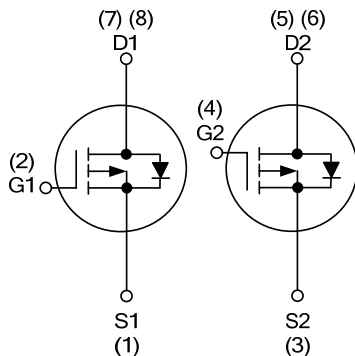


**UT4957****Power MOSFET****P-CHANNEL ENHANCEMENT
MODE POWER MOSFET****DESCRIPTION**

The **UT4957** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

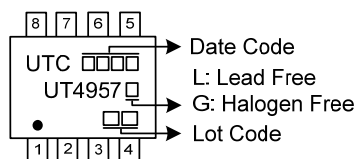
- * $R_{DS(ON)} \leq 24 \text{ m}\Omega$ @ $V_{GS} = -10\text{V}$, $I_D = -7.0\text{A}$
- * $R_{DS(ON)} \leq 36 \text{ m}\Omega$ @ $V_{GS} = -4.5\text{V}$, $I_D = -5.0\text{A}$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL**SOP-8****ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT4957L-S08-R	UT4957G-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

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

UT4957G-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 RATINGS** ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current		I_D	-7.7	A
Pulsed Drain Current (Note 2)		I_{DM}	-30	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	72	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	1	V/ns
Power Dissipation	$T_A=25^{\circ}\text{C}$	P_D	1.9	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. Repetitive Rating: Pulse width limited by maximum junction temperature.

3. $L = 1\text{mH}$, $I_{AS} = -12\text{A}$, $V_{DD} = -50\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^{\circ}\text{C}$

4. $I_{SD} \leq -7.7\text{A}$, $di/dt \leq 200\text{ A}/\mu\text{s}$, $V_{DD} \leq BV_{DS}$, Starting $T_J = 25^{\circ}\text{C}$

■ **THERMAL DATA**

PARAMETER		SYMBOL	RATINGS	UNIT
Junction-to-Ambient		θ_{JA}	90 (Note)	$^{\circ}\text{C}/\text{W}$

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

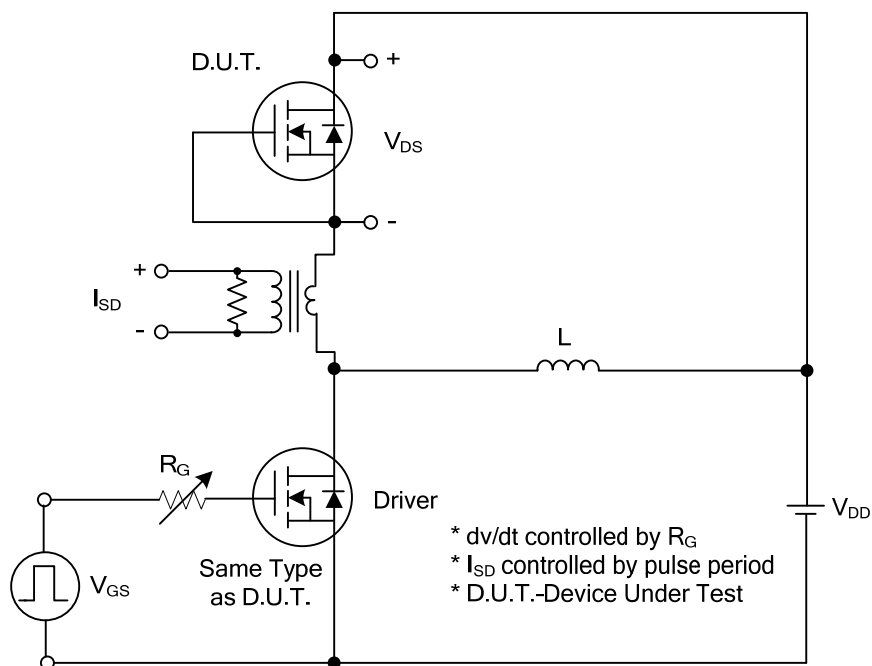
■ **ELECTRICAL CHARACTERISTICS** ($T_J=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.0		-3.0	V
Static Drain-Source On-Resistance (Note)	R _{DS(ON)}	V _{GS} =-10V, I _D =-7.0A		20	24	mΩ
		V _{GS} =-4.5V, I _D =-5.0A		30	36	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =-25V, V _{GS} =0V, f=1.0MHz		1180		pF
Output Capacitance	C _{OSS}			168		pF
Reverse Transfer Capacitance	C _{RSS}			133		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note)	Q _G	V _{GS} =-10V, V _{DS} =-24V, I _D =-7.7A		28		nC
	Q _G	V _{GS} =-4.5V, V _{DS} =-24V, I _D =-7.7A		15		nC
Gate Source Charge	Q _{GS}	V _{DS} =-24V, I _D =-7.7A		4		nC
Gate Drain Charge	Q _{GD}			8		nC
Turn-ON Delay Time (Note)	t _{D(ON)}	V _{DS} =-15V, I _D =-7.7A, V _{GS} =-10V R _G =3Ω,		5		ns
Turn-ON Rise Time	t _R			3		ns
Turn-OFF Delay Time	t _{D(OFF)}			45		ns
Turn-OFF Fall-Time	t _F			29		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I _S				-7.7	A
Diode Forward Voltage	V _{SD}	I _S =-1.7A, V _{GS} =0V			-1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _S =-7.7A, V _{GS} =0V, dI/dt=100A/μs		116		ns
Body Diode Reverse Recovery Charge	Q _{rr}			172		nC

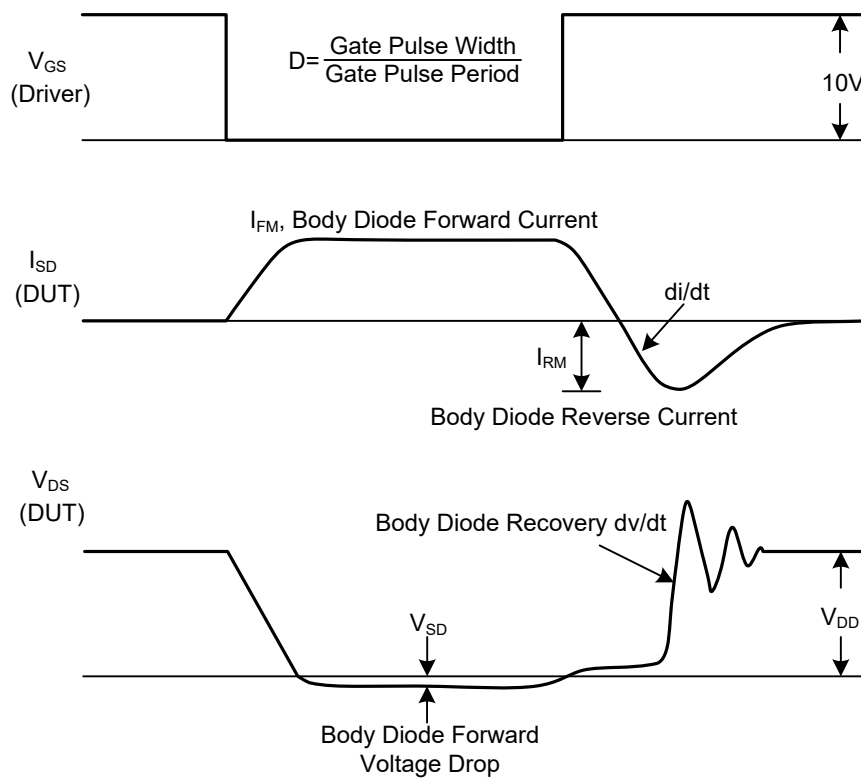
Notes: 1. Pulse Test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

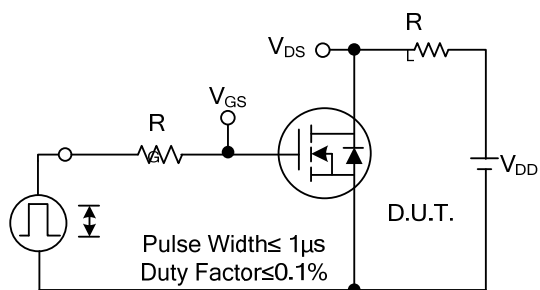


Peak Diode Recovery dv/dt Test Circuit

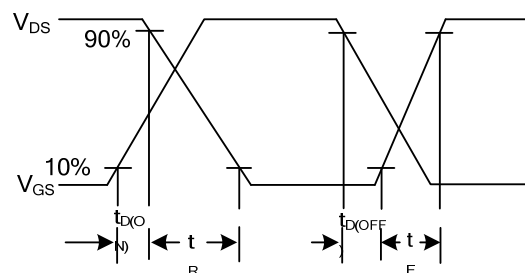


Peak Diode Recovery dv/dt Waveforms

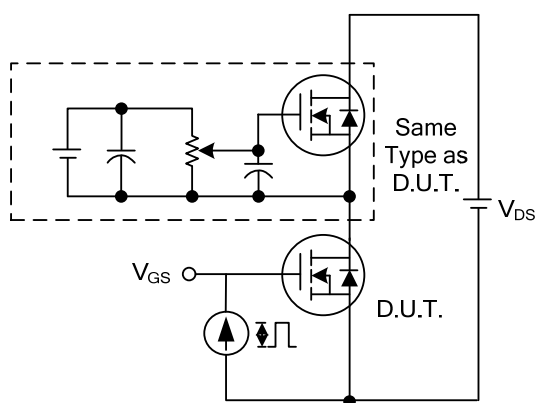
■ TEST CIRCUITS AND WAVEFORMS



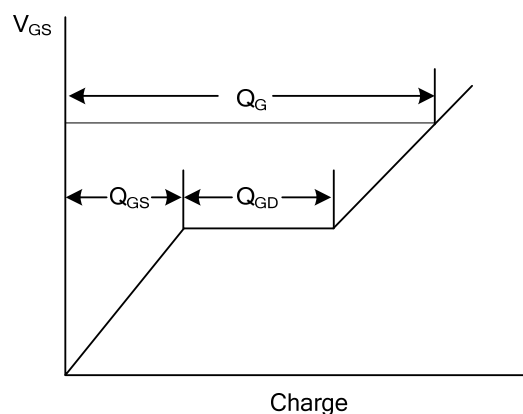
Switching Test Circuit



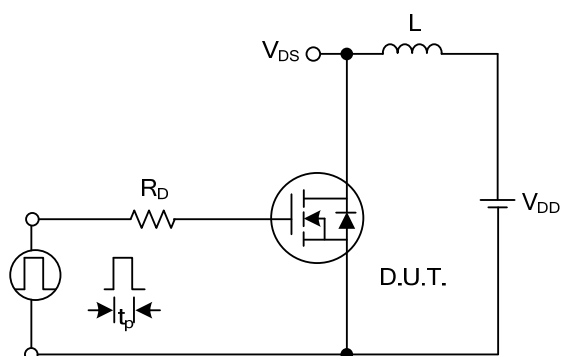
Switching Waveforms



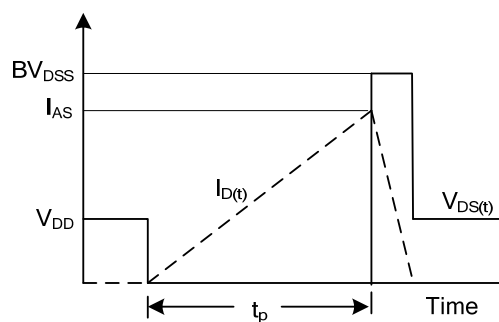
Gate Charge Test Circuit



Gate Charge Waveform

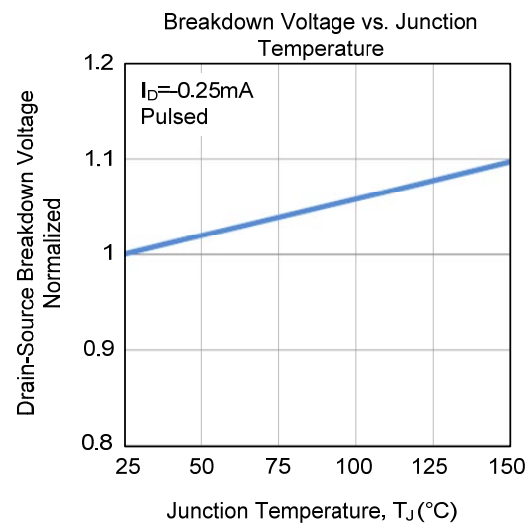
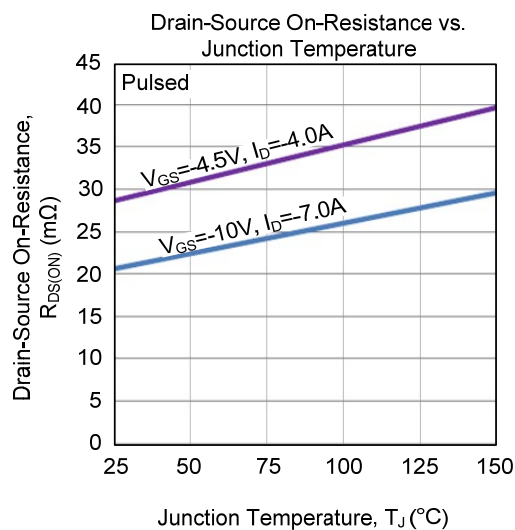
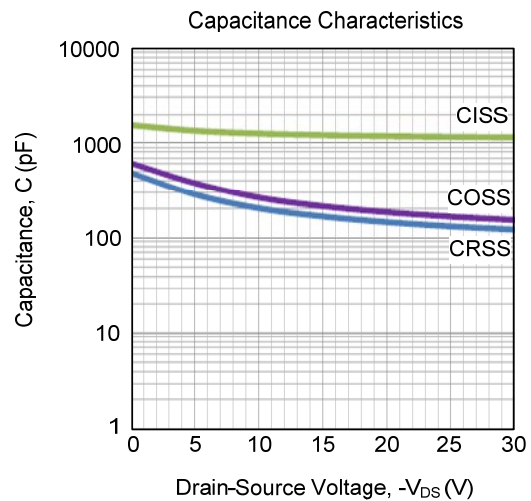
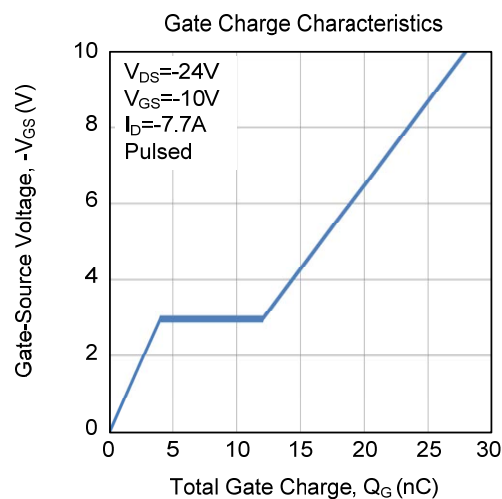
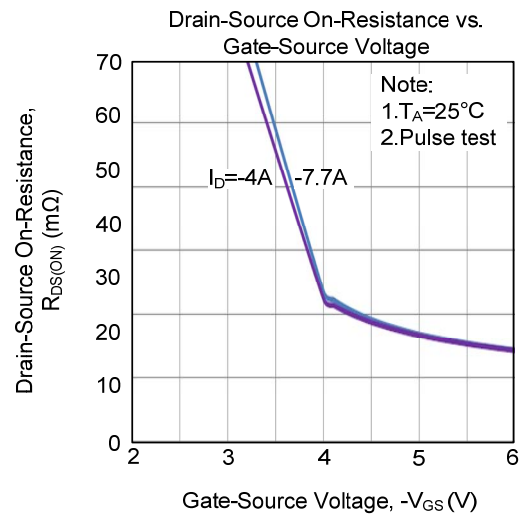
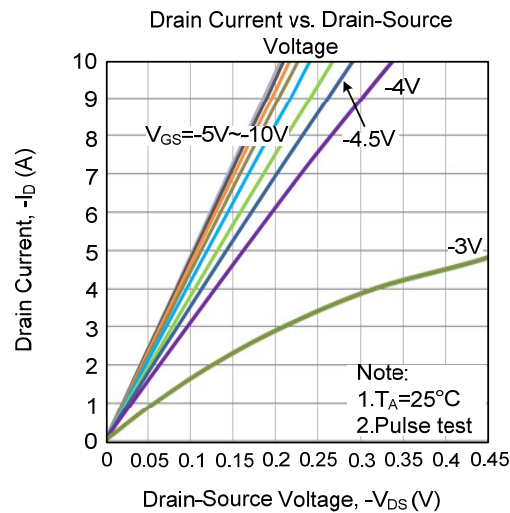


Unclamped Inductive Switching Test Circuit

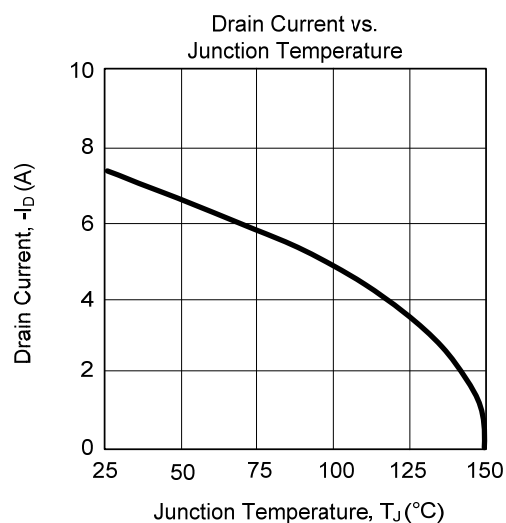
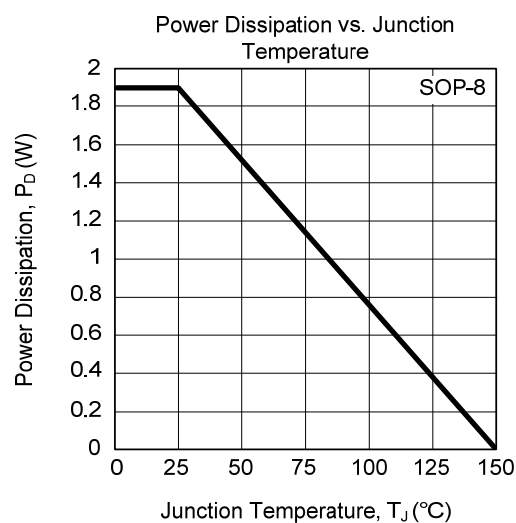
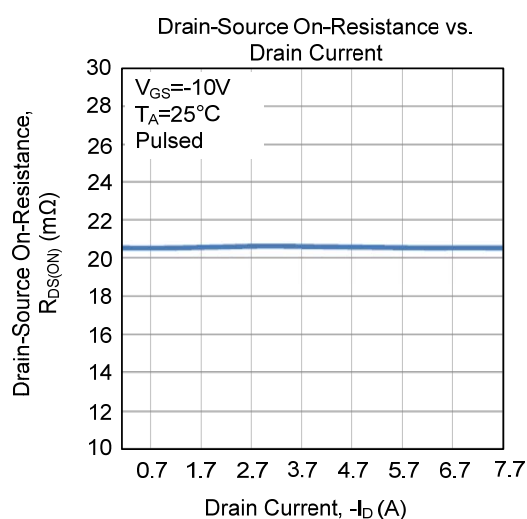
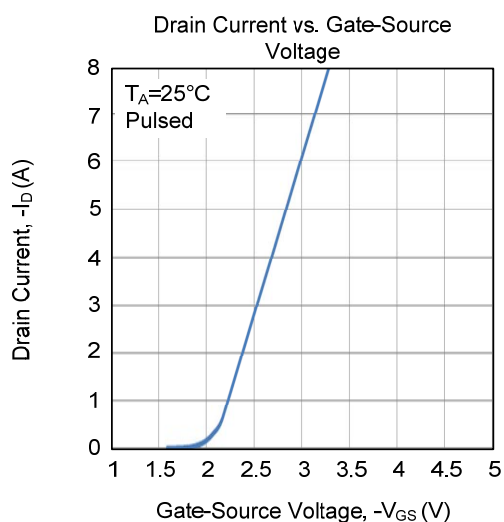
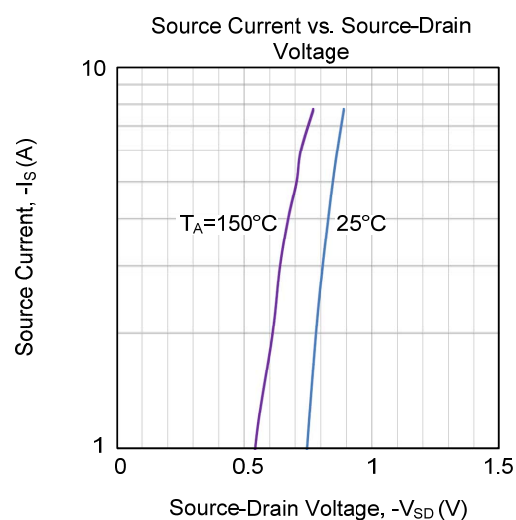
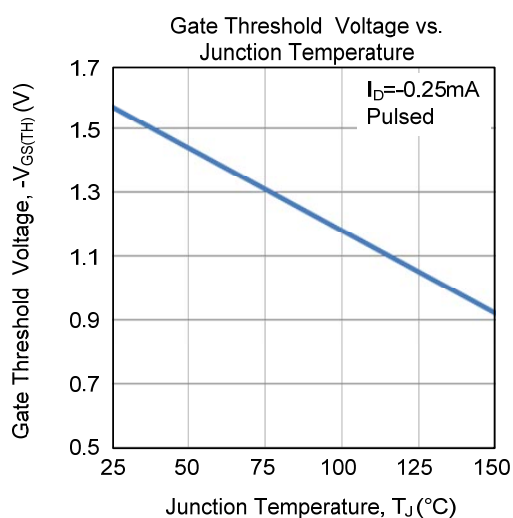


Unclamped Inductive Switching Waveforms

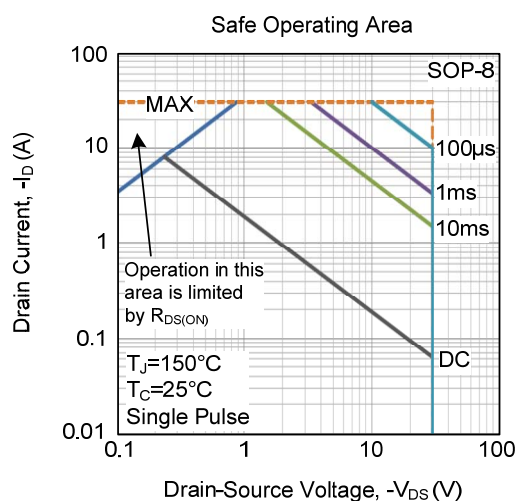
TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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