



## UT2343

Power MOSFET

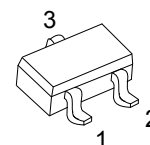
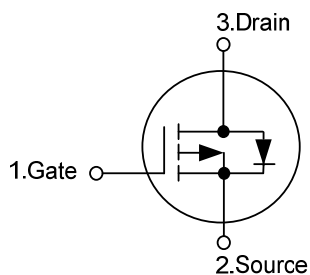
### -4.0A, -30V P-CHANNEL ENHANCEMENT MODE

#### DESCRIPTION

The UTC **UT2343** is P-Channel enhancement mode Power MOSFET, designed in serried ranks with fast switching speed, low on-resistance and favorable stabilization.

Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

#### SYMBOL



SOT-23  
(EIAJ SC-59)

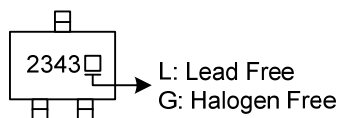
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT2343L-AE3-R	UT2343G-AE3-R	SOT-23	G	S	D	Tape Reel

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

<b>UT2343G-AE3-R</b>		(1) Packing Type	(1) R: Tape Reel
		(2) Package Type	(2) AE3: SOT-23
		(3) Green Package	(3) G: Halogen Free and Lead Free, L: Lead Free

#### MARKING



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

PARAMETER	SYMBOL	RATING	UNITS
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current (Note 3) ( $T_C=25^{\circ}\text{C}$ )	$I_D$	-4	A
Pulsed Drain Current (Note 2, 3)	$I_{DM}$	-15	A
Power Dissipation	$P_D$	1.38	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. Repetitive Rating : Pulse width limited by maximum junction temperature.

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

■ THERMAL DATA

PARAMETER	SYMBOL	RATING	UNIT
Junction to Ambient	$\theta_{JA}$	90	$^{\circ}\text{C/W}$

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

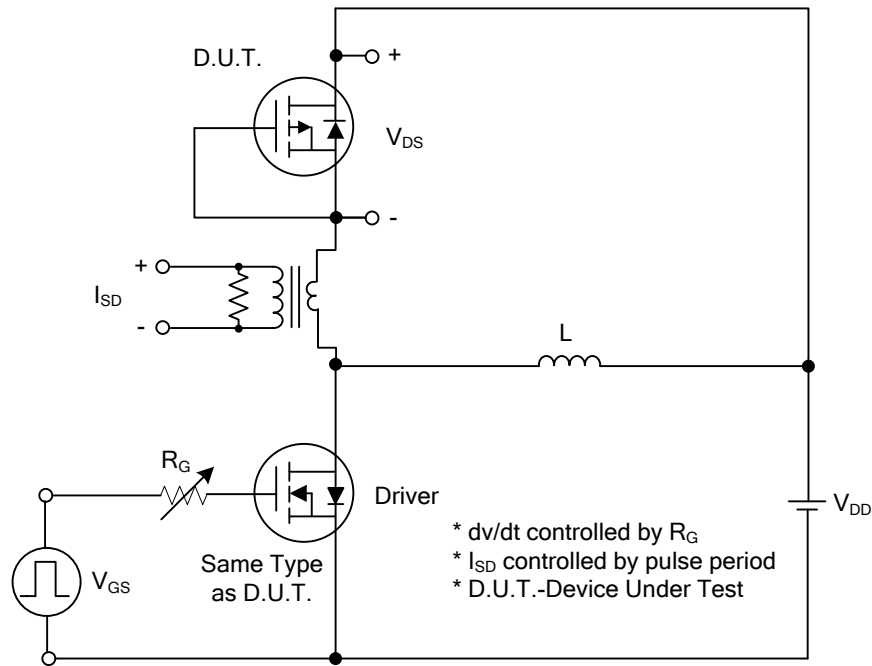
■ ELECTRICAL CHARACTERISTICS ( $T_J=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-30			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-1.0		-2.5	V
Drain-Source On-State Resistance (Note 2)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.0A			42	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3.1A			63	mΩ
SWITCHING CHARACTERISTICS						
Total Gate Charge (Note 2)	Q <sub>G</sub>	V <sub>DS</sub> =-24V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.0A (Note 1, 2)		24		nC
Gate-Source Charge	Q <sub>GS</sub>			4		nC
Gate-Drain Charge	Q <sub>GD</sub>			5.4		nC
Turn-ON Delay Time (Note 2)	t <sub>D(ON)</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.0A, R <sub>G</sub> =6Ω (Note 1, 2)		6		ns
Turn-ON Rise Time	t <sub>R</sub>			18		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			50		ns
Turn-OFF Fall Time	t <sub>F</sub>			33		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-4.0A			-1.4	V

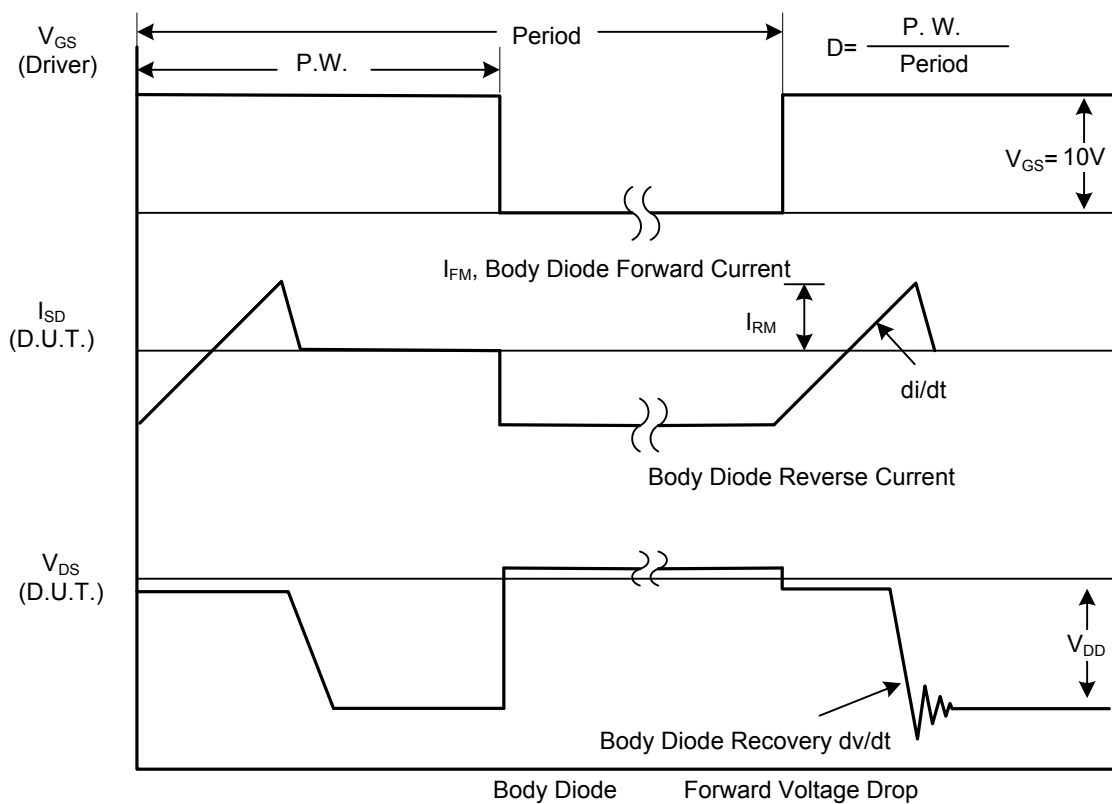
Notes: 1. Pulse Test: Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$ .

2. Essentially independent of operating temperature.

## ■ TEST CIRCUITS AND WAVEFORMS

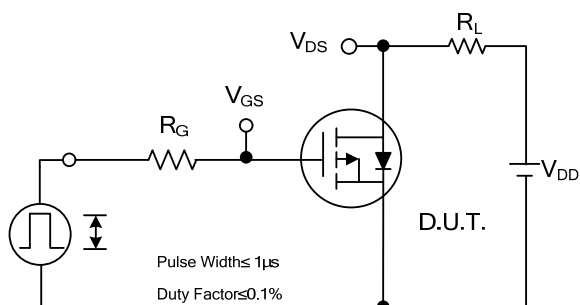


**Peak Diode Recovery  $dv/dt$  Test Circuit**

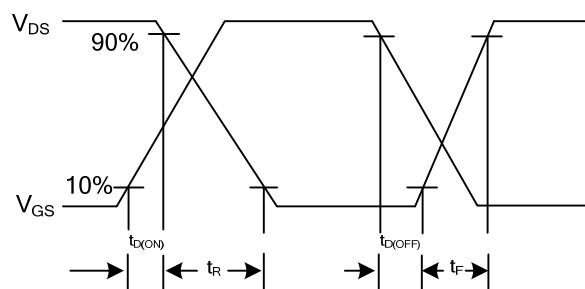


**Peak Diode Recovery  $dv/dt$  Waveforms**

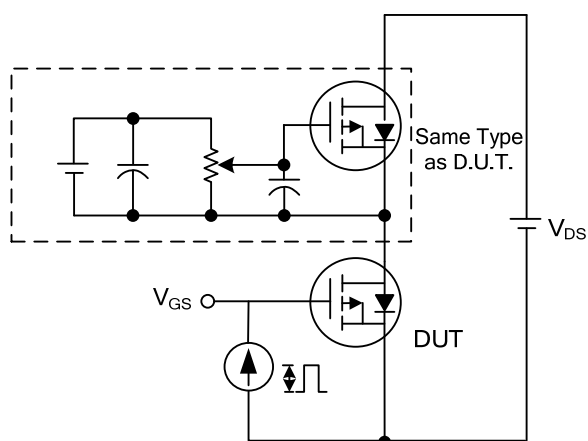
## ■ TEST CIRCUITS AND WAVEFORMS



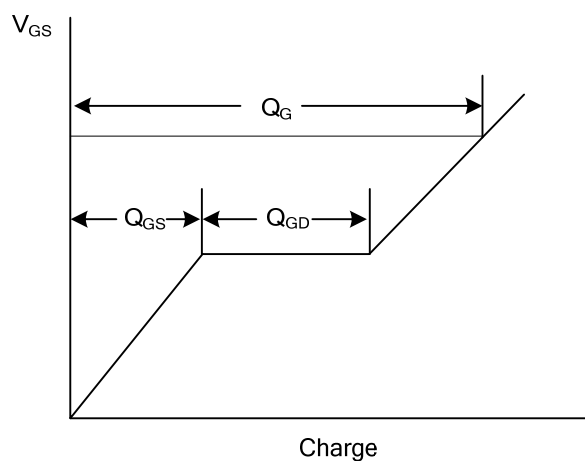
**Switching Test Circuit**



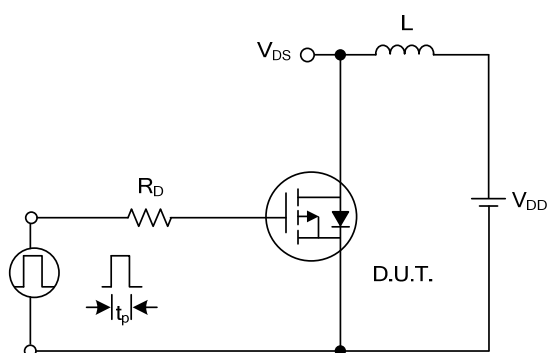
**Switching Waveforms**



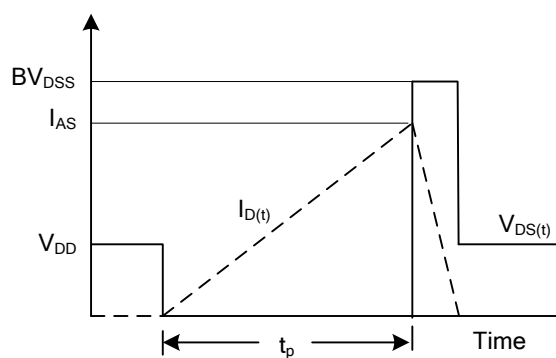
**Gate Charge Test Circuit**



**Gate Charge Waveform**

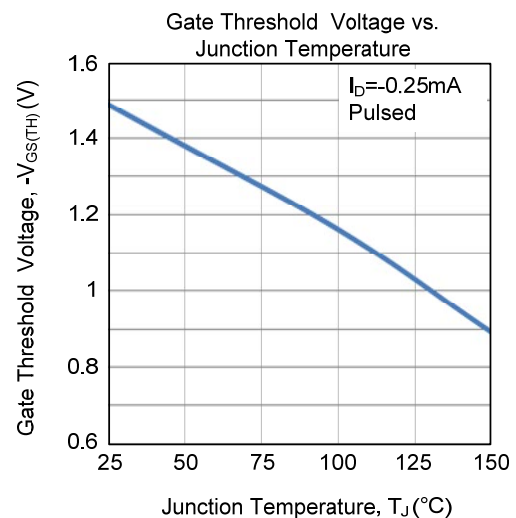
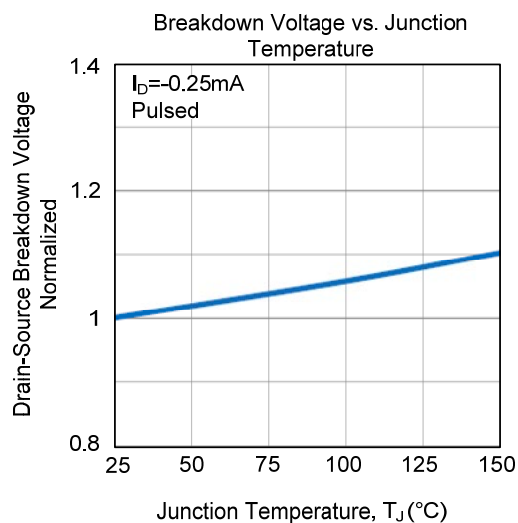
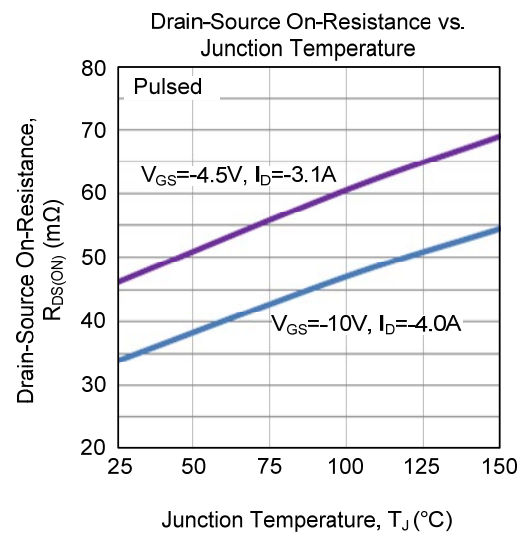
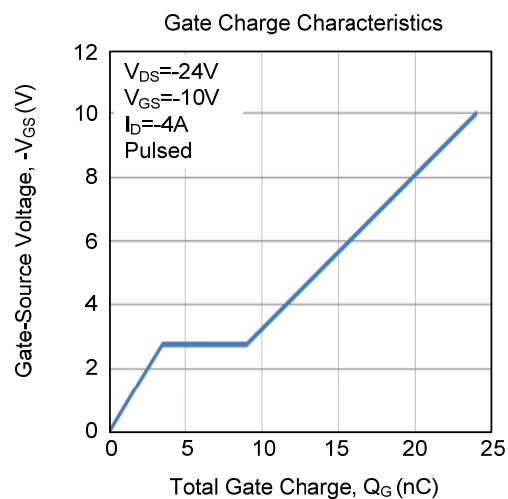
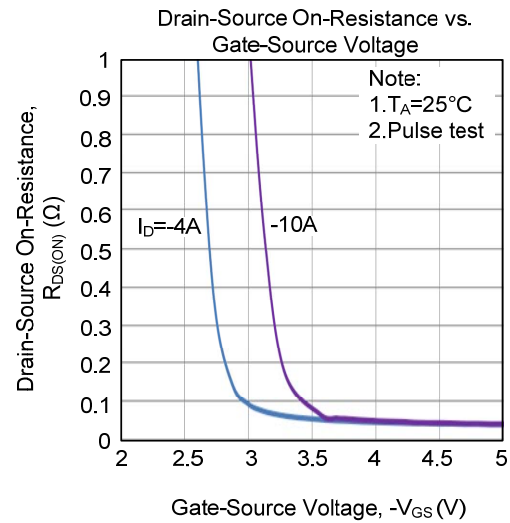
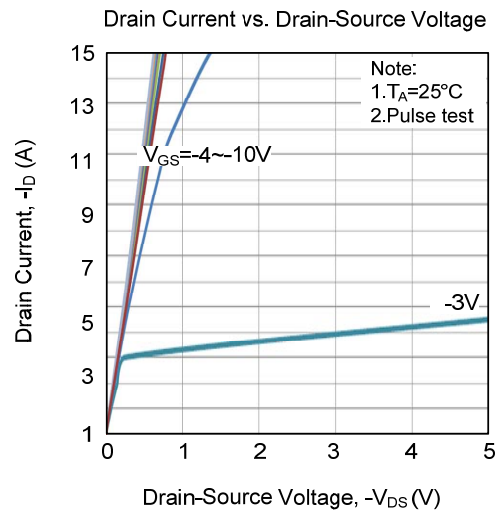


**Unclamped Inductive Switching Test Circuit**

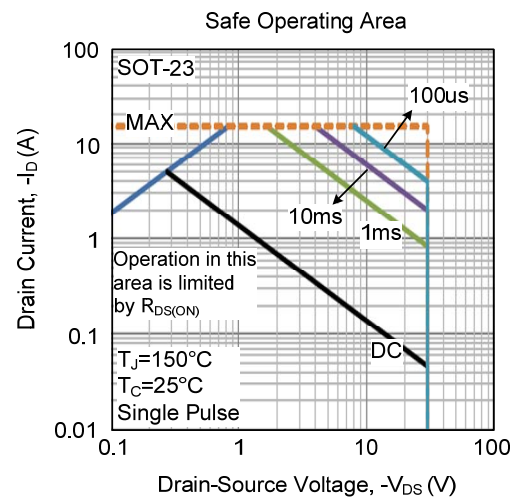
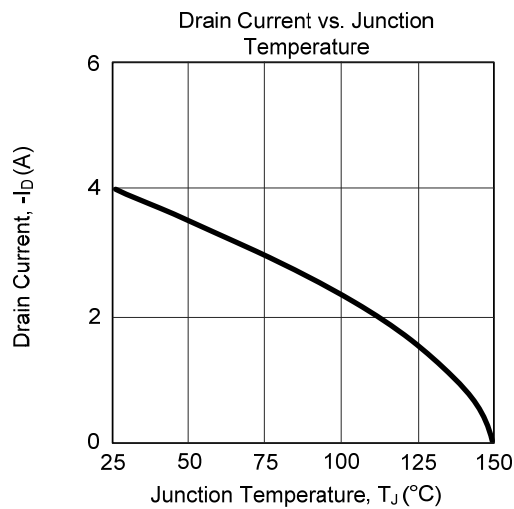
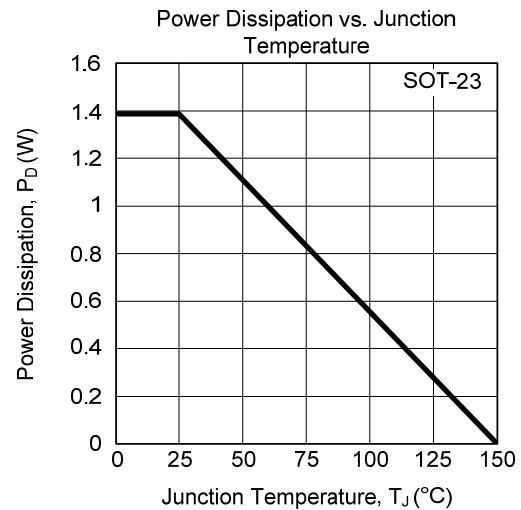
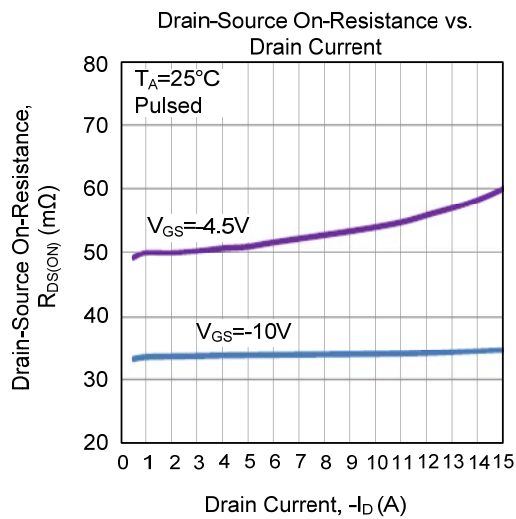
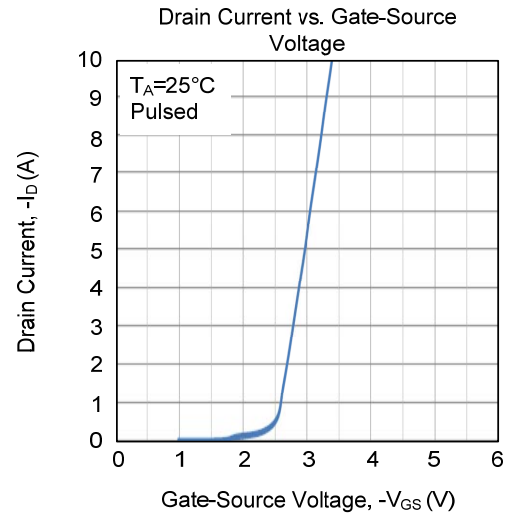
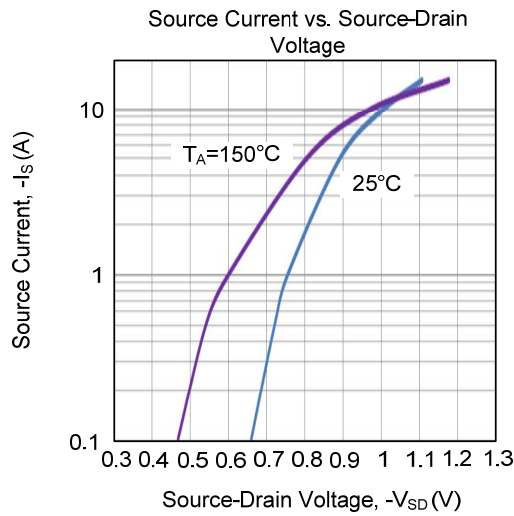


**Unclamped Inductive Switching Waveforms**

# TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS (Cont.)



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