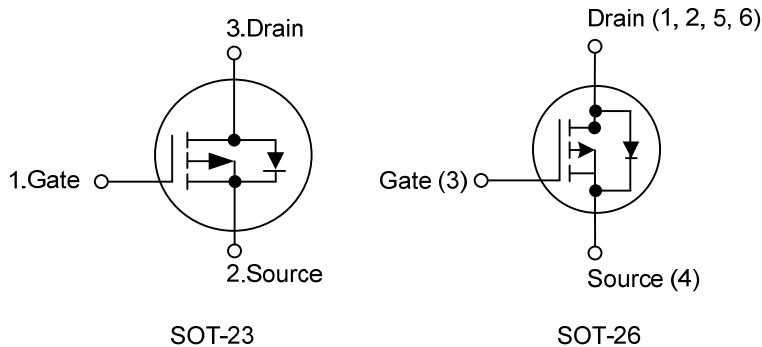


**UT3443****Power MOSFET****P-CHANNEL 2.5V (G-S)
MOSFET****DESCRIPTION**

The UTC **UT3443** is a P-channel power MOSFET using UTC's advanced trench technology to provide customers with a minimum on-state resistance and extremal low gate charge with a 12V gate rating.

FEATURES

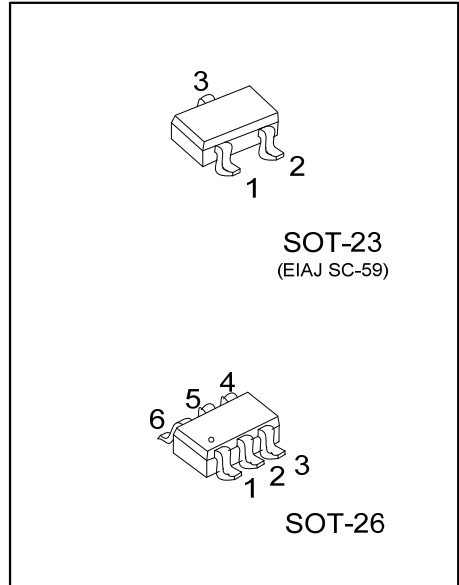
- * $V_{DS(V)} = -20V$
- * $I_D = -4.5A$
- * $R_{DS(ON)} \leq 100\text{ m}\Omega$ @ $V_{GS} = -2.5V$, $I_D = -3.7A$
- $R_{DS(ON)} \leq 90\text{ m}\Omega$ @ $V_{GS} = -2.7V$, $I_D = -3.8A$
- $R_{DS(ON)} \leq 65\text{ m}\Omega$ @ $V_{GS} = -4.5V$, $I_D = -4.5A$

SYMBOL**ORDERING INFORMATION**

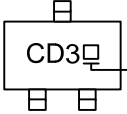
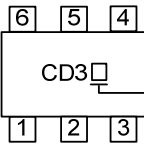
Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UT3443L-AE3-R	UT3443G-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel
UT3443L-AG6-R	UT3443G-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel

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

		(1) R: Tape Reel (2) AE3: SOT-23, AG6: SOT-26 (3) G: Halogen Free and Lead Free, L: Lead Free
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■ MARKING

SOT-23	SOT-26
 CD3□ → L: Lead Free G: Halogen Free	 CD3□ → L: Lead Free G: Halogen Free

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

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	-20	V
Gate-Source Voltage			V _{GSS}	±12	V
Drain Current	Continuous	T _C =25°C	I _D	-4.5	A
		T _C =70°C		-3.6	A
	Pulsed		I _{DM}	-20	A
Avalanche Energy	Single Pulsed (Note 3)		E _{AS}	273	mJ
Power Dissipation (Note 2)			P _D	1.2	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. $L=0.1\text{mH}$, $I_{AS}=-16.6\text{A}$, $V_{DD}=-50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^{\circ}\text{C}$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	104	$^{\circ}\text{C/W}$

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

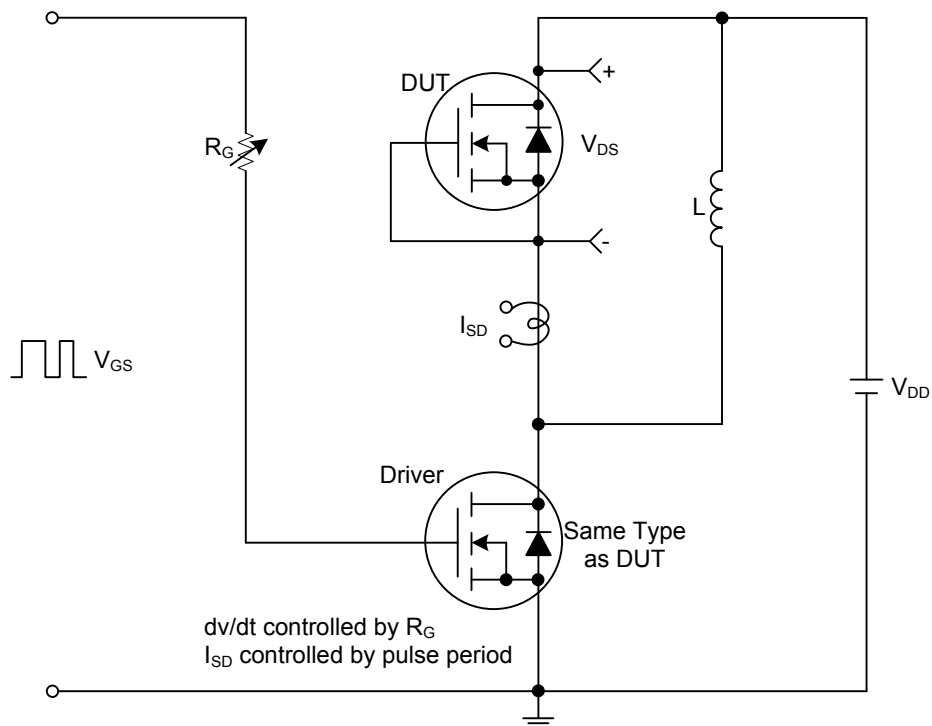
■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Gate Threshold Voltage		BV _{DSS}	V _{GS} =0V, I _D =250μA	-20			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1.0	μA
			V _{DS} =-20V, V _{GS} =0V			-5.0	
Gate- Source Leakage Current	Forward	I _{GSS}	V _{GS} =+12V, V _{DS} =0V			+100	nA
	Reverse		V _{GS} =-12V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4		-1.2	V
Static Drain-Source On-State Resistance (Note 1)		R _{DS(ON)}	V _{GS} =-4.5V, I _D =-4.5A			65	mΩ
			V _{GS} =-2.7V, I _D =-3.8A			90	mΩ
			V _{GS} =-2.5V, I _D =-3.7A			100	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{DS} =-10V, V _{GS} =0V, f=1.0MHz		966.5		pF
Output Capacitance		C _{OSS}			204.2		pF
Reverse Transfer Capacitance		C _{RSS}			181.9		pF
SWITCHING PARAMETERS (Note 2)							
Total Gate Charge		Q _G	V _{DS} =-16V, V _{GS} =-4.5V, I _D =-4.5A I _G =-1mA (Note 1, 2)		15		nC
Gate to Source Charge		Q _{GS}			2.5		nC
Gate to Drain Charge		Q _{GD}			4		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =-10V, V _{GS} =-10V, I _D =-4.5A, R _G =6Ω (Note 1, 2)		5.4		ns
Rise Time		t _R			16.9		ns
Turn-OFF Delay Time		t _{D(OFF)}			50.2		ns
Fall-Time		t _F			30.2		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Continuous Drain-Source Diode Forward Current		I _S				-4.5	A
Maximum Pulsed Drain-Source Diode Forward Current		I _{SM}				-20	A
Drain-Source Diode Forward Voltage		V _{SD}	I _S =-1.7A, V _{GS} =0V			1.4	V

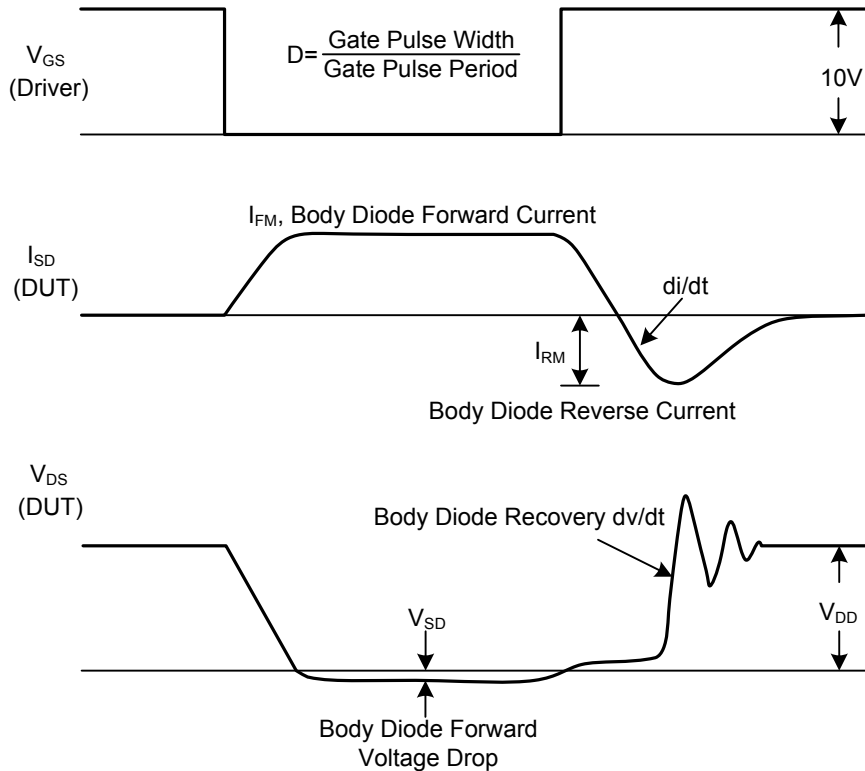
Notes: 1. Pulse Test : Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

2. Essentially independent of operating ambient temperature.

■ TEST CIRCUITS AND WAVEFORMS



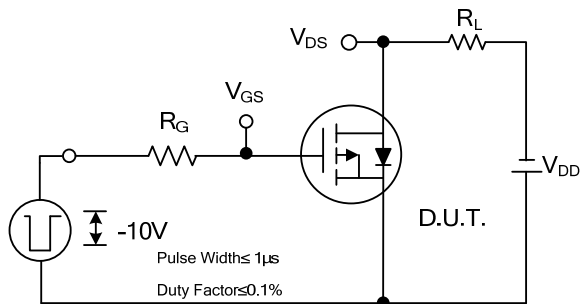
Peak Diode Recovery dv/dt Test Circuit



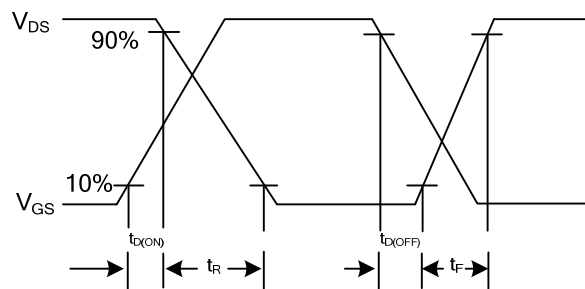
Peak Diode Recovery dv/dt Test Circuit and Waveforms

Peak Diode Recovery dv/dt Waveforms

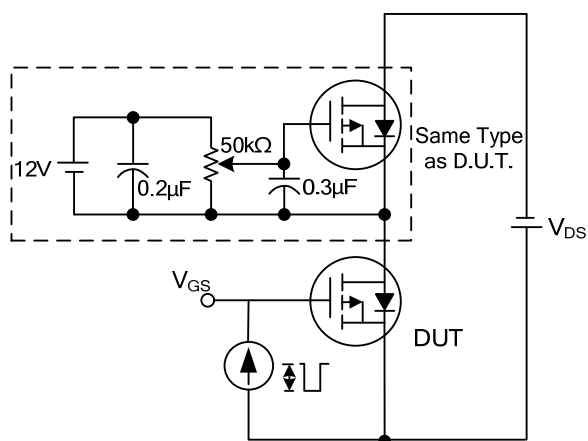
■ TEST CIRCUITS AND WAVEFORMS



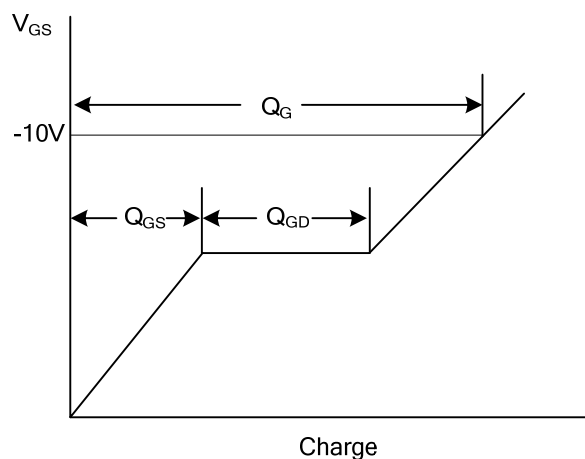
Switching Test Circuit



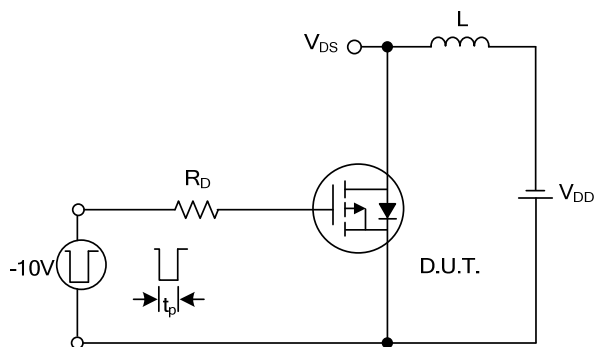
Switching Waveforms



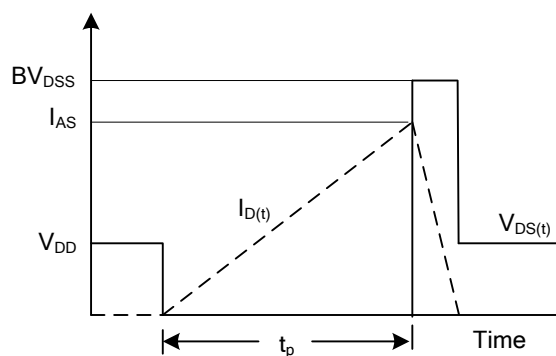
Gate Charge Test Circuit



Gate Charge Waveform



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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