

**UFB4110H****POWER MOSFET****150A, 100V N-CHANNEL
POWER MOSFET****DESCRIPTION**

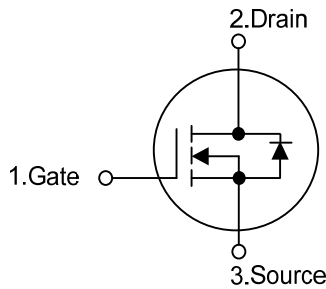
The UTC **UFB4110H** is a N-channel Power MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on-state resistance, etc.

The UTC **UFB4110H** is suitable for hard switched and high frequency circuits, etc.

FEATURES

* $R_{DS(ON)} \leq 5.5 \text{ m}\Omega @ V_{GS}=10V, I_D=75A$

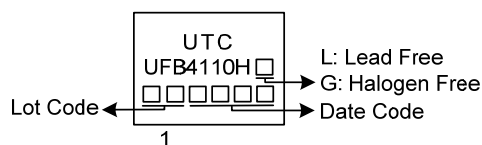
* High switching speed

SYMBOL**ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UFB4110HL-TA3-T	UFB4110HG-TA3-T	TO-220	G	D	S	Tube
UFB4110HL-TQ2-T	UFB4110HG-TQ2-T	TO-263	G	D	S	Tube
UFB4110HL-TQ2-R	UFB4110HG-TQ2-R	TO-263	G	D	S	Tape Reel

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

UFB4110HG-TA3-T (1) Packing Type (2) Package Type (3) Green Package		(1) T: Tube, R: Tape Reel (2) TA3: TO-220, TQ2: TO-263 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

■ ABSOLUTE MAXIMUM RATING (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	I _D	150	A
	Pulsed (Note 2)	I _{DM}	300	A
Avalanche Energy	Single Pulsed (Note 3)	E _{AS}	205	mJ
Peak Diode Recovery (Note 4)		dv/dt	4.5	V/ns
Maximum Power Dissipation		P _D	250	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=0.1mH, I_{AS}=64.1A, 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	θ _{JA}	62.5	°C/W
Junction to Case	θ _{JC}	0.5 (Note 2)	°C/W

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

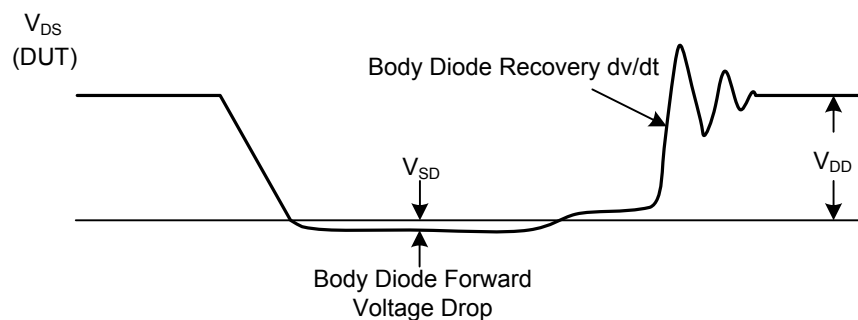
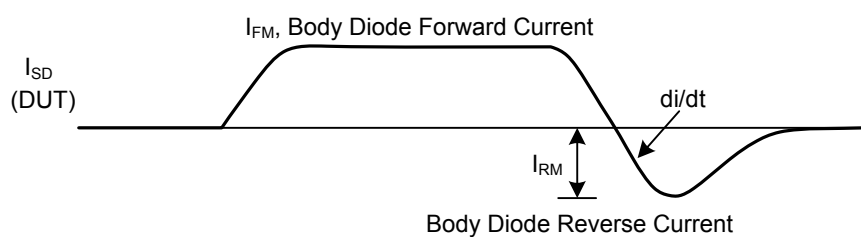
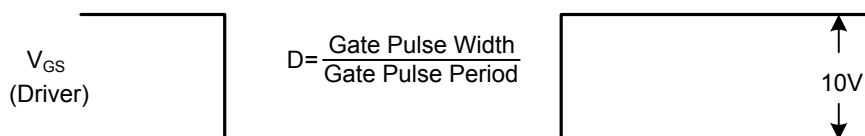
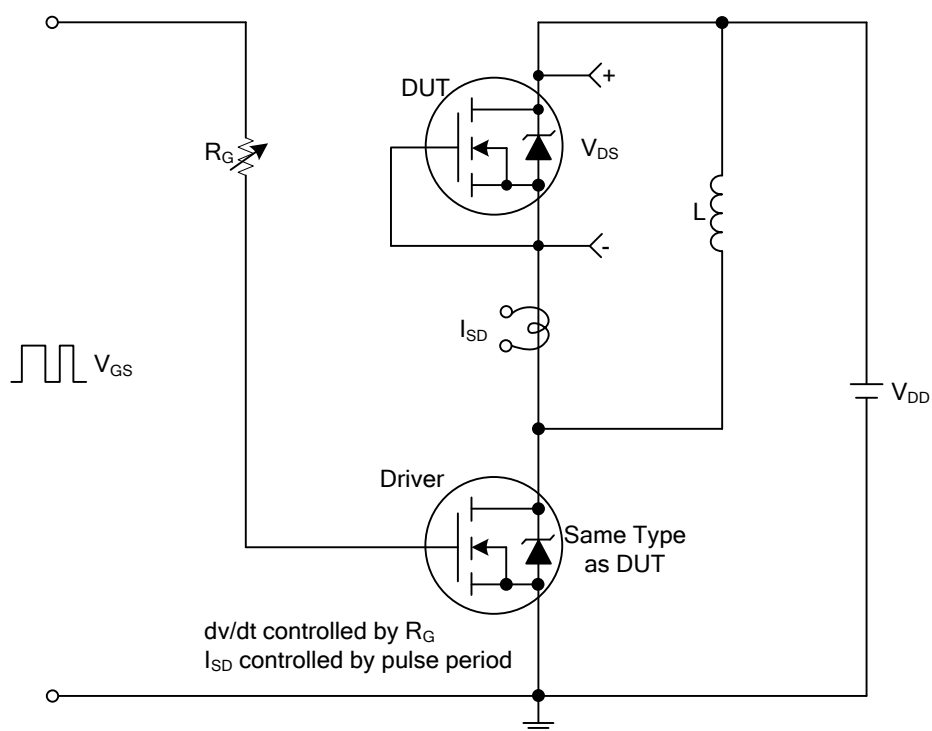
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	V _{GS} =0V, I _D =250μA	100			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} =100V, V _{GS} =0V			10	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-Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =75A		4.2	5.5	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		20.2		nF
Output Capacitance		C _{OSS}			808		pF
Reverse Transfer Capacitance		C _{RSS}			656		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q _G	V _{DS} =80V, V _{GS} =10V, I _D =150A, (Note 1, 2)		360		nC
Gate-to-Source Charge		Q _{GS}			85		nC
Gate-to-Drain ("Miller") Charge		Q _{GD}			100		nC
Turn-ON Delay Time		t _{D(ON)}	V _{DD} =50V, V _{GS} =10V, I _D =150A, R _G =3.3Ω (Note 1, 2)		46		ns
Rise Time		t _R			27		ns
Turn-OFF Delay Time		t _{D(OFF)}			168		ns
Fall Time		t _F			65		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Continuous Source Current (Body Diode) (Note 1)		I _S				150	A
Pulsed Source Current (Body Diode) (Note 1)		I _{SM}				300	A
Drain-Source Diode Forward Voltage		V _{SD}	V _{GS} =0V, I _S =75A			1.3	V
Body Diode Reverse Recovery Time		t _{rr}	I _S =30A, V _{GS} =0V,		86		ns
Body Diode Reverse Recovery Charge		Q _{rr}	dI _F /dt=100 A/μs		283		nC

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

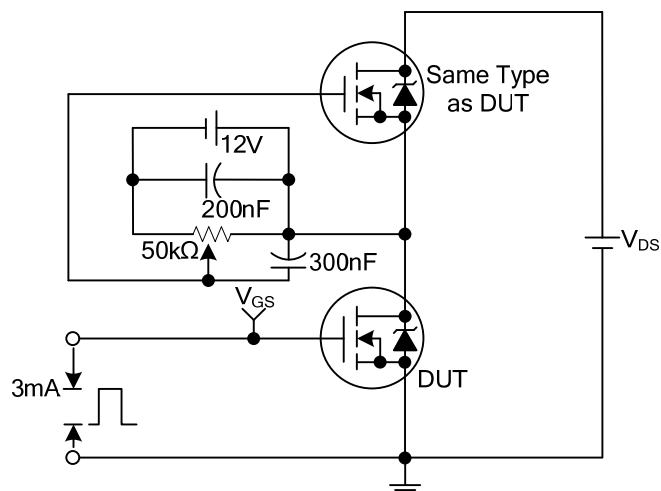
2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

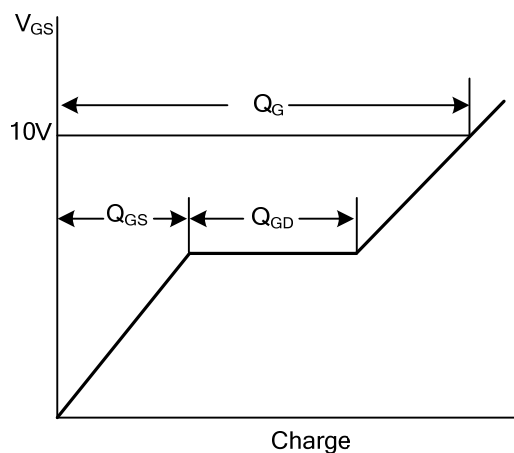


Peak Diode Recovery dv/dt Test Circuit and Waveforms

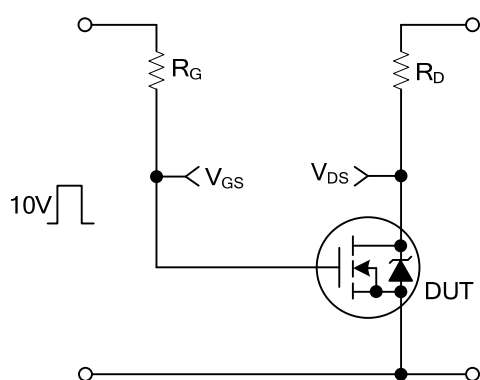
■ TEST CIRCUITS AND WAVEFORMS (Cont.)



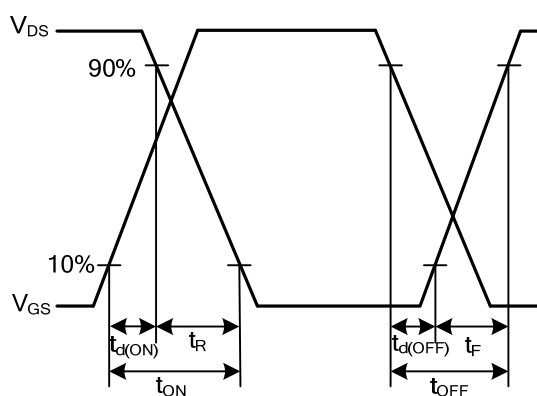
Gate Charge Test Circuit



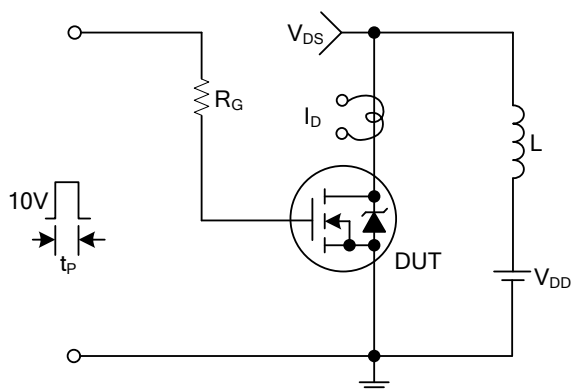
Gate Charge Waveforms



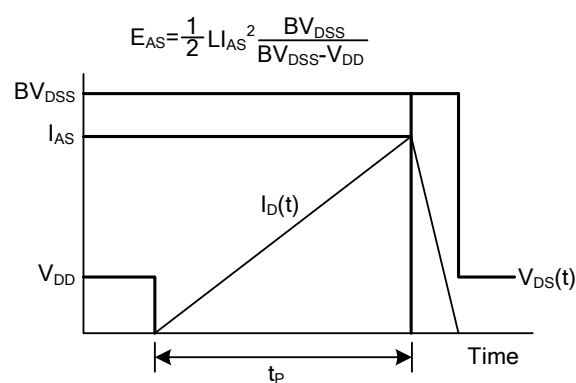
Resistive Switching Test Circuit



Resistive Switching Waveforms



Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

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