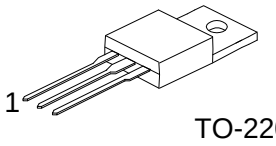
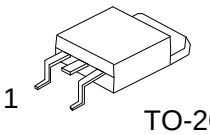
UTT150N06H

Power MOSFET

150A, 60V N-CHANNEL POWER MOSFET



TO-220



TO-263

■ DESCRIPTION

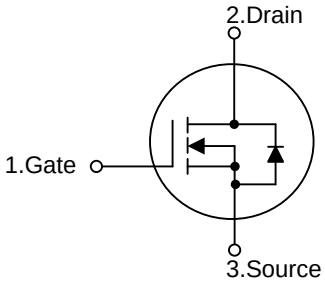
The UTC **UTT150N06H** is an N-channel Power Trench MOSFET, using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance.

The UTC **UTT150N06H** is generally applied in synchronous Rectification or DC to DC converter.

■ FEATURES

* $R_{DS(ON)} \leq 3.8\ m\Omega$ @ V_{GS}=10V, I_D = 75A
* High Switching Speed
* High Power and Current Handling Capability

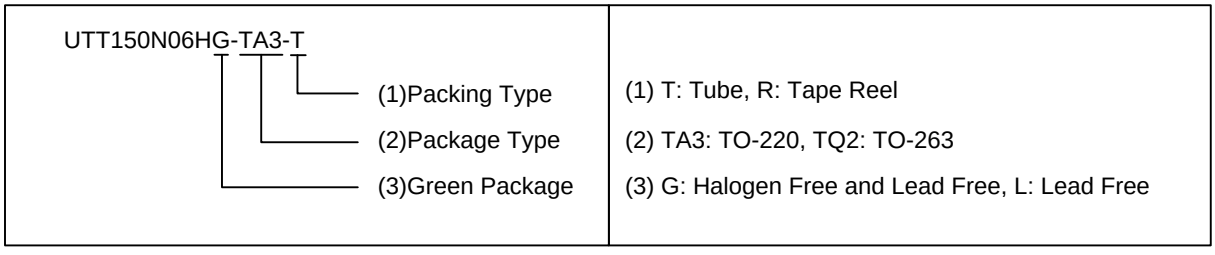
■ SYMBOL



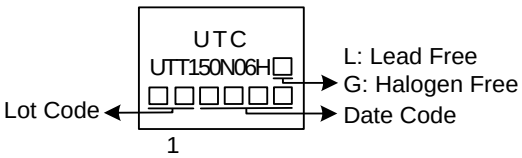
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT150N06HL-TA3-T	UTT150N06HG-TA3-T	TO-220	G	D	S	Tube
UTT150N06HL-TQ2-R	UTT150N06HG-TQ2-R	TO-263	G	D	S	Tape Reel
UTT150N06HL-TQ2-T	UTT150N06HG-TQ2-T	TO-263	G	D	S	Tube

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



■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (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
Peak Diode Recovery dv/dt (Note 4)		dv/dt	7.0	V/ns
Drain Current	Continuous (T_C=25°C, Silicion Limited)	I_D	150	A
	Pulsed (Note 2)	I_{DM}	600	A
Single Pulsed Avalanche Energy (Note 3)		E_{AS}	500	mJ
Power Dissipation	T_C=25°C	P_D	231	W
	Derate above 25°C		1.54	
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 = 0.1mH, I_{AS} = 75A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C
4. Essentially independent of operating temperature Typical Characteristics

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	°C/W
Junction to Case	θ_{JC}	0.94	°C/W

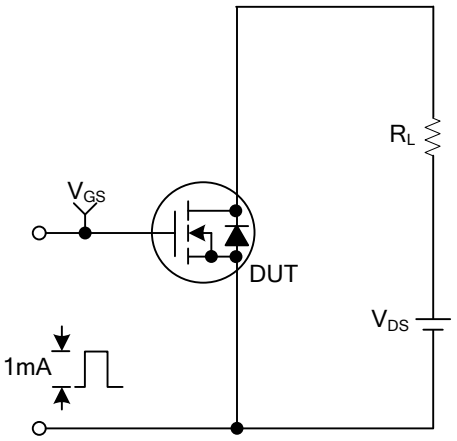
■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V, T_C=25°C	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=75A			3.8	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		6190		pF
Output Capacitance		C_{OSS}			1040		pF
Reverse Transfer Capacitance		C_{RSS}			300		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=10V, V_{DS}=50V, I_D=1.3A I_G=100μA (Note1, 2)		440		nC
Gate to Source Charge		Q_{GS}			60		nC
Gate to Drain Charge		Q_{GD}			60		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{GS}=10V, V_{DD}=30V, I_D=0.5A, R_G=25Ω (Note1, 2)		300		ns
Rise Time		t_R			300		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			800		ns
Fall-Time		t_F			380		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S				150	A
Maximum Body-Diode Pulsed Current		I_{SM}				600	A
Drain-Source Diode Forward Voltage		V_{SD}	I_{SD}=75A, V_{GS}=0V			1.3	V

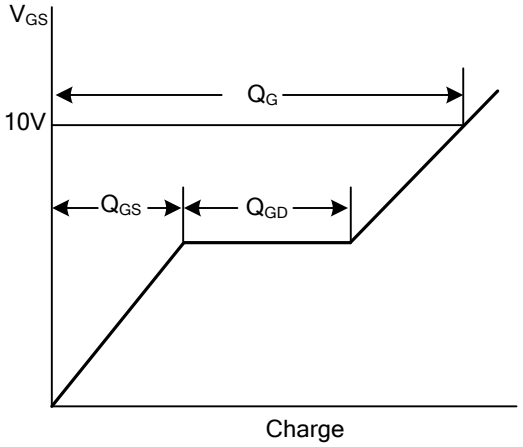
Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature.

■ TEST CIRCUITS AND WAVEFORMS

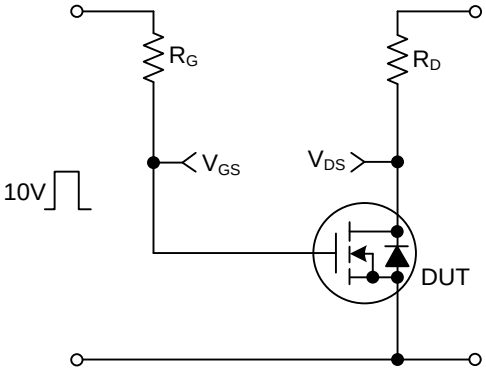
Gate Charge Test Circuit



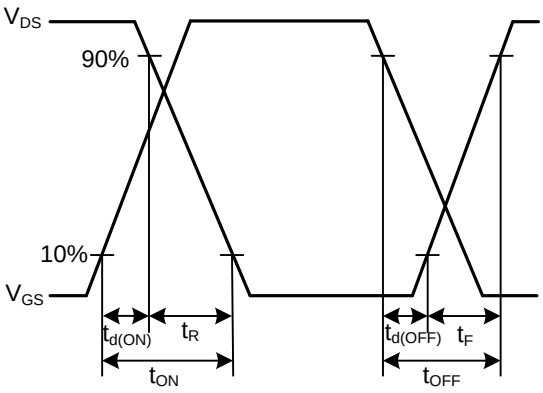
Gate Charge Waveforms



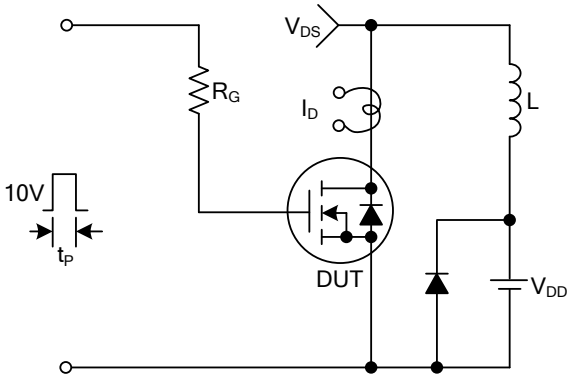
Resistive Switching Test Circuit



Resistive Switching Waveforms

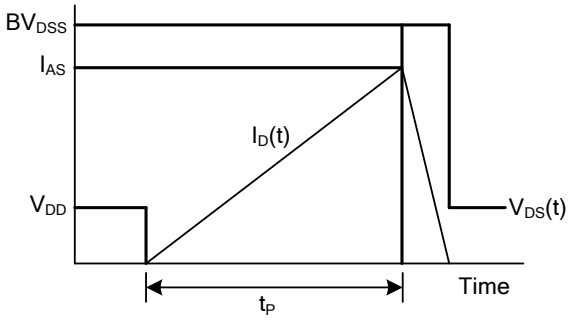


Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

$E_{AS}=\frac{1}{2}LI_{AS}^2$



■ TEST CIRCUITS AND WAVEFORMS

Peak Diode Recovery dv/dt Test Circuit & Waveforms