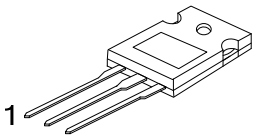
UFP264

Power MOSFET

38A, 250V N-CHANNEL POWER MOSFET



TO-247

■ DESCRIPTION

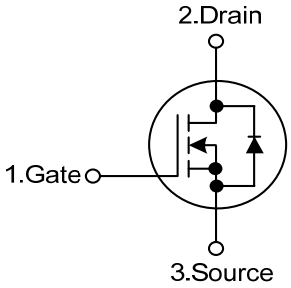
The UTC **UFP264** is an N-channel power MOSFET using UTC's advanced technology to provide the customers with perfect $R_{DS(ON)}$, high switching speed, high current capacity and low gate charge.

The UTC **UFP264** is suitable for motor control, AC-DC or DC-DC converters and audio amplifiers, etc.

■ FEATURES

* $R_{DS(ON)}$<75mΩ @ V_{GS}=10V,I_D=38A
* High Switching Speed
* High Current Capacity
* Low Gate Charge(typical 130nC)

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UFP264L-T47-T	UFP264G-T47-T	TO-247	G	D	S	Tube

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

UFP264L-T47-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube (2) T47: TO-247 (3) L: Lead Free, G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS (T_C =25°C, unless otherwise specified)(Note 1)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (V_{GS}=0)		V_{DSS}	250	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous I	$_D$ 38		A
	Pulsed (Note 1)	I_{DM}	152	A
Avalanche Energy		E_{AS}	1000	mJ
		E_{AR}	28	mJ
Power Dissipation		P_D	280	W
Derate above 25°C			2.2	mW/°C
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. Pulse width limited by safe operating area
3. V_{DD}=50V, L=1.1mH, R_G=25Ω, I_{AS}=38A

■ THERMAL DATA

PARAMETER SYMBOL		RATINGS	UNIT
Junction to Ambient	θ_{JA}	40	°C/W
Junction to Case	θ_{JC}	0.45	°C/W

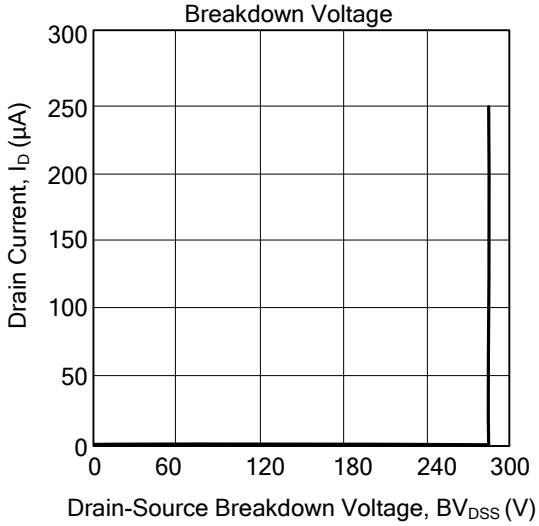
■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=250μA, V_{GS}=0V 250				V
Drain-Source Leakage Current		I_{DSS}	V_{DS}=250V, V_{GS}=0V			25	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 (Note 2)							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	2	3	4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=23A			75	mΩ
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=25V, f=1.0MHz	390	0		pF
Output Capacitance		C_{OSS}			950		pF
Reverse Transfer Capacitance		C_{RSS}			250		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{GS}=10V, V_{DD}=40V, I_D=38A	130		170	nC
Gate to Source Charge		Q_{GS}			26		nC
Gate to Drain Charge		Q_{GD}			55		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{DD}=30V, I_D=1A, R_G=4.7Ω, V_{GS}=10V	30			ns
Rise Time		t_R			180		ns
Fall-Time t		$_F$			35		ns
Off-Voltage Rise Time		$t_{R(OFF)}$			135		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S (Note	1)			38	A
Maximum Body-Diode Pulsed Current		I_{SM}				152	A
Drain-Source Diode Forward Voltage		V_{SD}	I_{SD}=38A, V_{GS}=0V (Note 2)			1.8	V

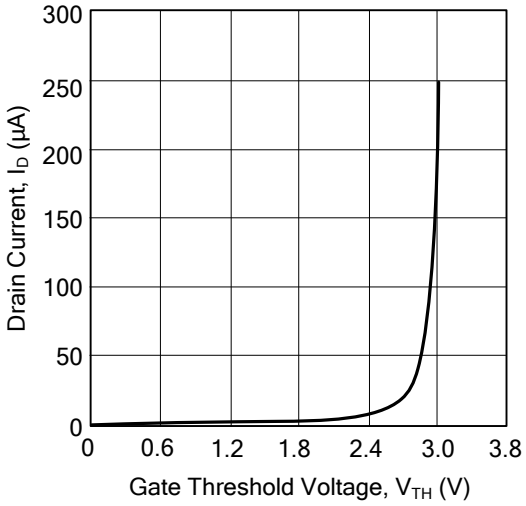
Notes: 1. Pulse width limited by safe operating area
2. Pulsed: Pulse duration=300μs, Duty cycle ≤2%

■ TYPICAL CHARACTERISTICS

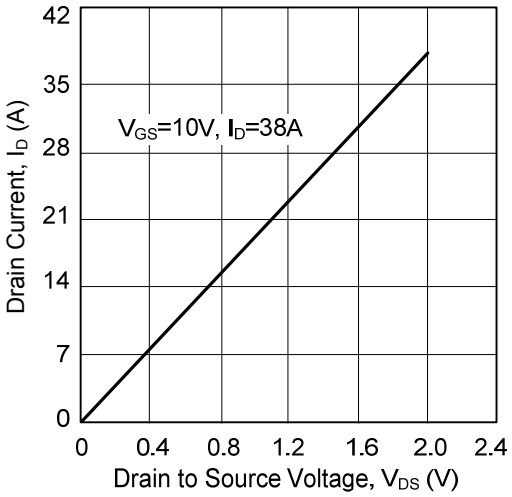
Drain Current vs. Drain-Source Breakdown Voltage



Drain Current vs. Gate Threshold Voltage



Drain-Source On-State Resistance Characteristics



Drain Current vs. Source to Drain Voltage