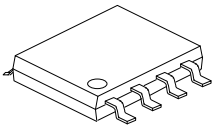
DUAL ENHANCEMENT MODE (N-CHANNEL/P-CHANNEL)



SOP-8

■ DESCRIPTION

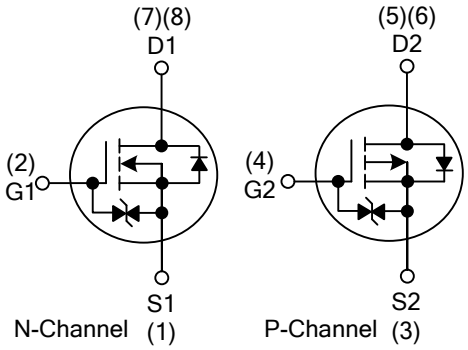
The UTC **UD4606Z** is a dual enhancement mode Power MOSFET using UTC perfect trench technology to provide customers with advanced $R_{DS(ON)}$ and low gate charge. This device has ESD protection function.

These complementary MOSFETs can be used to form a level shifted high side switch and for other applications.

■ FEATURES

* N-Channel: 30V/6.9A
  $R_{DS(ON)}$=22.5mΩ (TYP.) (V_{GS}=10V)
  $R_{DS(ON)}$=34.5mΩ ((TYP.) (V_{GS}=4.5V)
*P-Channel: -30V/-6A
  $R_{DS(ON)}$=28mΩ(TYP.) (V_{GS}=-10V)
  $R_{DS(ON)}$=44mΩ(TYP.) (V_{GS}=-4.5V)
* Reliable and rugged
* ESD protection

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free Plating	Halogen Free		1	2	3	4	5	6	7	8	
UD4606ZL-S08-R	UD4606ZG-S08-R	SOP-8	S1	G1	S2	G2	D2	D2	D1	D1	Tape Reel

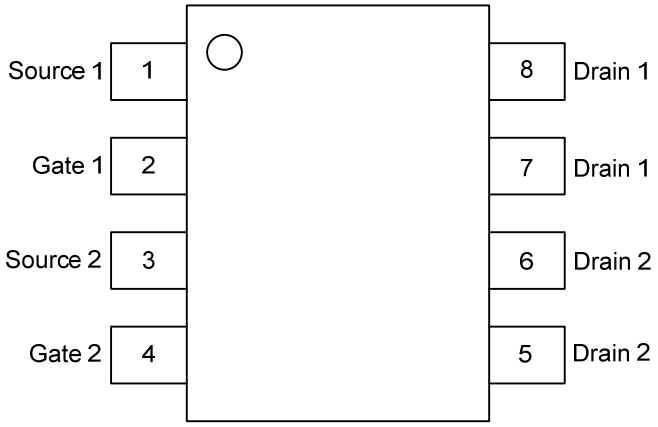
UD4606ZL - S08 - R

(1) Packing Type — (1) R: Tape Reel, T: Tube

(2) Package Type — (2) S08: SOP-8

(3) Halogen Free — (3) G: Halogen Free

■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS (T_A =25°C, unless otherwise specified)

N-CHANNEL

PARAMETER	SYMBOL	RATINGS	UNIT
Drain to Source Voltage	V_{DSS}	30	V
Gate to Source Voltage	V_{GSS}	±20	V
Continuous Drain Current[2]	I_D	6.9	A
Pulsed Drain Current[2]	I_{DM}	30	A
Total Power Dissipation	P_D	2	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

P-CHANNEL

PARAMETER	SYMBOL	RATINGS	UNIT
Drain to Source Voltage	V_{DSS}	-30	V
Gate to Source Voltage	V_{GSS}	±20	V
Continuous Drain Current[2]	I_D	-6	A
Pulsed Drain Current[2]	I_{DM}	-30	A
Total Power Dissipation	P_D	2	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: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. Surface Mounted on 1in^2 pad area, t≤10sec.

■ THERMAL DATA

PARAMETER	SYMBOL	PATINGS	UNIT
Junction to Ambient (Note)	$R_{\theta JA}$	110	°C/W

Note: Surface Mounted on 1in^2 pad area, t≤10sec.

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

N-CHANNEL

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V ,V_{GS}=±20V			±5	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.9	3	V
Drain-Source On-State Resistance[2]	$R_{DS(ON)}$	V_{GS}=10V,I_D=6.9A		22.5	28	mΩ
		V_{GS}=4.5V, I_D=5A		34.5	42	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=15V,V_{GS}=0V,f =1MHz		680		pF
Output Capacitance	C_{OSS}			102		pF
Reverse Transfer Capacitance	C_{RSS}			77		pF
SWITCHING PARAMETERS						
Total Gate Charge[2]	Q_G	V_{DS}=15V, V_{GS}=10V, I_D=6.9A		13.8		nC
Gate-Source Charge	Q_{GS}			1.82		nC
Gate-Drain Charge	Q_{GD}			3.2		nC
Turn-ON Delay Time[2]	$t_{D(ON)}$	V_{DS}=15V, V_{GS}=10V, R_G=3Ω, R_L=2.2Ω		4.6		ns
Turn-ON Rise Time	t_R			4.1		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			20.6		ns
Turn-OFF Fall Time	t_F			5.2		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Continuous Forward Current[3]	I_S				3	A
Drain-Source Diode Forward Voltage[2]	V_{SD}	I_S =6.9A, V_{GS}=0V		0.76	1	V

P-CHANNEL

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=-24V,V_{GS}=0V			-1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V ,V_{GS}=±20V			±5	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.2	-2	-2.4	V
Drain-Source On-State Resistance[2]	$R_{DS(ON)}$	V_{GS}=-10V,I_D=-6A		28	35	mΩ
		V_{GS}=-4.5V, I_D=-5A		44	58	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=-15V,V_{GS}=0V,f =1MHz		920		pF
Output Capacitance	C_{OSS}			190		pF
Reverse Transfer Capacitance	C_{RSS}			122		pF
SWITCHING PARAMETERS						
Total Gate Charge[2]	Q_G	V_{DS}=-15V,V_{GS}=-10V,I_D=-6A		18.5		nC
Gate-Source Charge	Q_{GS}			2.7		nC
Gate-Drain Charge	Q_{GD}			4.5		nC
Turn-ON Delay Time[2]	$t_{D(ON)}$	V_{DS}=-15V,V_{GS}=-10V,R_G=3Ω, R_L=2.7Ω		7.7		ns
Turn-ON Rise Time	t_R			5.7		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			20.2		ns
Turn-OFF Fall Time	t_F			9.5		ns

■ ELECTRICAL CHARACTERISTICS(Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Continuous Forward Current[3]	I_S				-4.2	A
Drain-Source Diode Forward Voltage[2]	V_{SD}	I_S =-6A, V_{GS}=0V		-0.76	-1	V

Notes:
1. Pulse width limited by $T_{J(MAX)}$.
2. Pulse width ≤300μs, duty cycle ≤2%.
3. Surface Mounted on 1in^2 pad area, t≤10sec.