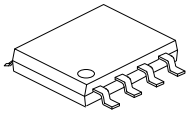
DUAL P-CHANNEL 20V - 0.07Ω - 4A POWER MOSFET



SOP-8

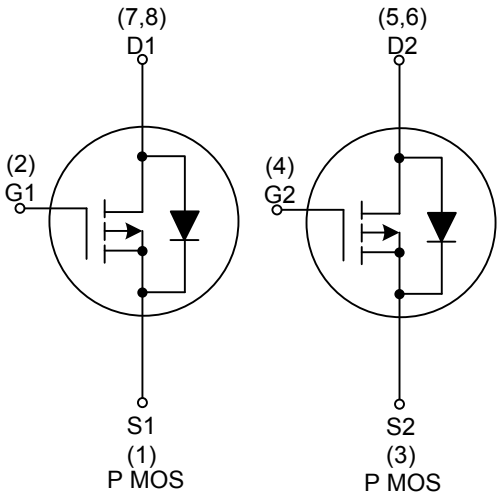
■ DESCRIPTION

The UTC **UD4P20** uses advanced technology to provide excellent $R_{DS\ (ON)}$, low gate charge and operation with low gate voltages. This device is manufacturing reproducible. The UTC **UD4P20** is suitable for applications, such as battery management in nomadic equipment and power management in cellular phone.

■ FEATURES

* $R_{DS(ON)}$:0.07Ω (TYP.)
* Low on-resistance
* Rugged avalanche characteristic
* Easy automated surface mount assembly with standard outline
* Low threshold drive
* Halogen Free

■ SYMBOL

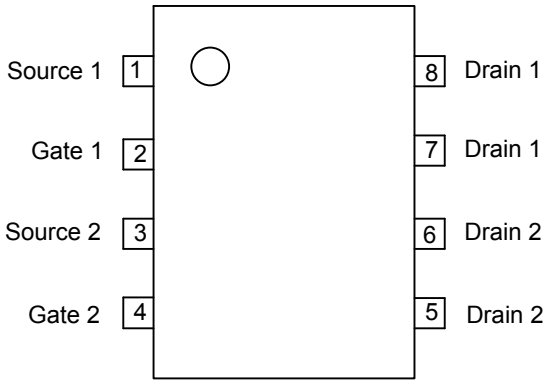


■ ORDERING INFORMATION

Ordering Number	Package	Packing
UD4P20G-S08-R	SOP-8	Tape Reel

UD4P20G-S08-R (1) Packing Type (2) Package Type (3) Halogen Free	(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free

■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (V_{GS} =0V)		V_{DSS}	20	V
Drain-Gate Voltage ((R_{GS} = 20kΩ)		V_{DGR}	20	V
Gate-Source Voltage		V_{GSS}	±16	V
Continuous Drain Current (T_C =25°C, Single Operation)		I_D	4	A
Pulsed Drain Current (Note 2)		I_{DM}	16	A
Power Dissipation (T_C=25°C)	Dual Operation	P_D	1.6	W
	Single Operation		2	W
Junction Temperature		T_J	-55 ~ +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.

■ THERMAL DATA

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	Single Operation	$θ_{JA}$		62.5		°C /W
	Dual Operation			78		°C /W

Note: When Mounted on 0.5 in^2 pad of 2 oz.copper

■ 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 = 250 μA, V_{GS} = 0	20			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =20 V, V_{GS} =0 V			1	μA
Gate- Source Leakage Current	I_{GSS}	V_{GS} = ±16 V, V_{DS}=0 V			±100	nA
ON CHARACTERISTICS (Note 1)						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} = V_{GS}, I_D = 250 μA	1	1.6	2.5	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS} =10 V, I_D =2 A		70	80	mΩ
		V_{GS} =4.5 V, I_D =2 A		85	100	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS} =25 V, V_{GS} =0 V f=1MHz		1350		pF
Output Capacitance	C_{OSS}			490		pF
Reverse Transfer Capacitance	C_{RSS}			130		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	V_{DD}=15V, I_D=2 A V_{GS}=4.5 V, R_G=4.7 Ω		25		ns
Turn-ON Rise Time	t_R			35		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			125		ns
Turn-OFF Fall-Time	t_F			35		ns
Total Gate Charge	Q_G	V_{DD} =24 V, V_{GS} =5 V I_D =4 A		12.5	16	nC
Gate Source Charge	Q_{GS}			5		nC
Gate Drain Charge	Q_{GD}			3		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage (Note 1)	V_{SD}	I_{SD} =4 A, V_{GS} =0 V			1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I_{SD}				4	
Maximum Pulsed Drain-Source Diode Forward Current (Note 2)	I_{SDM}				16	
Reverse Recovery Time	t_{RR}	I_{SD}=4 A, V_{DD}=15V dI/dt =100A/μs, T_J =150°C		45		ns
Reverse Recovery Charge	Q_{RR}			36		nC

Notes: 1. Pulsed: Pulse duration =300μS, duty cycle≤1.5 %.
2. Pulse width limited by safe operating area.