

UNISONIC TECHNOLOGIES CO., LTD

UD4P20 Preliminary Power MOSFET

DUAL P-CHANNEL $20V - 0.07\Omega$ - 4A POWER MOSFET

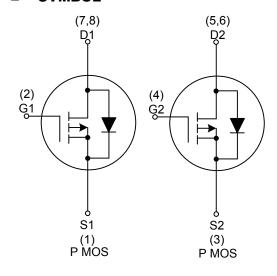
■ DESCRIPTION

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

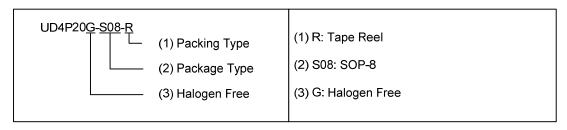
- * $R_{DS(ON)}$: 0.07 Ω (TYP.)
- * Low on-resistance
- * Rugged avalanche characteristic
- * Easy automated surface mount assembly with standard outline
- * Low threshold drive
- * Halogen Free

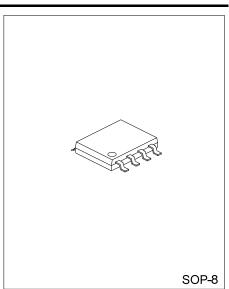
■ SYMBOL



ORDERING INFORMATION

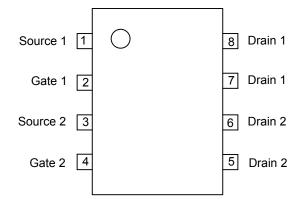
Ordering Number	Package	Packing
UD4P20G-S08-R	SOP-8	Tape Reel





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■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage (V _{GS} =0	V)	$V_{ extsf{DSS}}$	20	V
Drain-Gate Voltage ((R _{GS} = 20)kΩ)	V_{DGR}	20	V
Gate-Source Voltage		V_{GSS}	±16	V
Continuous Drain Current (T _C =25°C, Single Operation)		I _D	4	Α
Pulsed Drain Current (Note 2)		I_{DM}	16	Α
IPOWAR Discinstion (Latyby)	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.

■ THERMAL DATA

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Lunction to Ambient	Single Operation	θЈА		62.5		°C /W
Junction to Ambient	Dual Operation			78		°C /W

Note: When Mounted on 0.5 in² pad of 2 oz.copper

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
OFF CHARACTERISTICS				I		ı	
Drain-Source Breakdown Voltage	BV _{DSS}	$I_D = 250 \mu A, V_{GS} = 0$	20			V	
Drain-Source Leakage Current	I _{DSS}	V _{DS} =20 V, V _{GS} =0 V			1	μA	
Gate- Source Leakage Current	I _{GSS}	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0 \text{ V}$			±100	nA	
ON CHARACTERISTICS (Note 1)							
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	1	1.6	2.5	V	
Static Drain-Source On-State Resistance		V _{GS} =10 V, I _D =2 A		70	80	mΩ	
	R _{DS(ON)}	V_{GS} =4.5 V, I_{D} =2 A		85	100	mΩ	
DYNAMIC PARAMETERS							
Input Capacitance	C _{ISS}	V -25 V V -0 V		1350		рF	
Output Capacitance	Coss	V _{DS} =25 V, V _{GS} =0 V -f=1MHz		490		рF	
Reverse Transfer Capacitance	C_{RSS}	1= 11VITI2		130		pF	
SWITCHING PARAMETERS							
Turn-ON Delay Time	t _{D(ON)}			25		ns	
Turn-ON Rise Time	t _R	V_{DD} =15V, I_{D} =2 A V_{GS} =4.5		35		ns	
Turn-OFF Delay Time	t _{D(OFF)}	V, R _G =4.7 Ω		125		ns	
Turn-OFF Fall-Time	t _F			35		ns	
Total Gate Charge	Q_{G}	V 04.V V 5.V		12.5	16	nC	
Gate Source Charge	Q_GS	$V_{DD} = 24 \text{ V}, V_{GS} = 5 \text{ V}$		5		nC	
Gate Drain Charge	Q_GD	-I _D =4 A		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					4		
Forward Current	I _{SD}				4		
Maximum Pulsed Drain-Source Diode	lonu				16		
Forward Current (Note 2)	I _{SDM}				10		
Reverse Recovery Time	t_RR	I _{SD} =4 A, V _{DD} =15V		45		ns	
Reverse Recovery Charge	Q_{RR}	$dI/dt = 100A/\mu s$, $T_J = 150$ °C		36		nC	

Notes: 1. Pulsed: Pulse duration =300µS, duty cycle≤1.5 %.

^{2.} Pulse width limited by safe operating area.

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