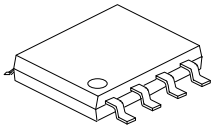
30V, 13A N-CHANNEL POWER MOSFET



SOP-8

■ DESCRIPTION

The UTC **UPC8026** is an N-channel enhancement mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low leakage current and high forward transfer admittance.

■ FEATURES

* V_{DS} = 30V, I_D = 13A
* $R_{DS(ON)}$=0.0051Ω @ V_{GS}=10V,
  $R_{DS(ON)}$=0.0075Ω @ V_{GS}=4.5V
* High forward transfer admittance: $|Y_{fs}|$=30S
* Low leakage current: I_{DSS}<10μA @ V_{DS}=30 V

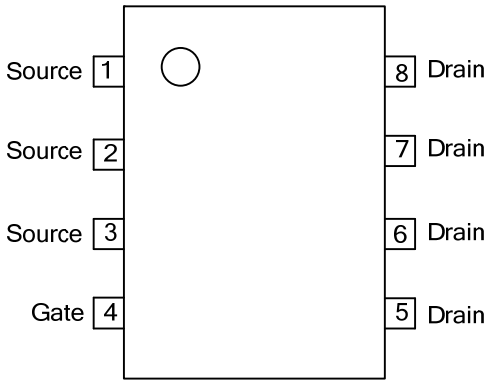
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UPC8026L-S08-R	UPC8026G-S08-R	SOP-8	Tape Reel

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

UPC8026L-S08-R (1)Packing Type	(1) R: Tape Reel, T: Tube
(2)Package Type	(2) S08: SOP-8
(3)Lead Free	(3) G: Halogen Free, L: Lead Free

■ PIN CONFIGURATION



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

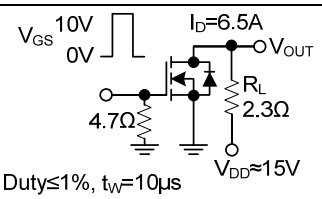
PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain-Gate Voltage (R_{GS}=20kΩ)		V_{DGR}	30	V
Drain Current	Continuous (Note 2)	I_D	13	A
	Pulsed (Note 2)	I_{DM}	52	A
Avalanche Current		I_{AR}	13	A
Avalanche Energy	Single Pulsed (Note 4)	E_{AS}	44	mJ
	Repetitive (Note 3, 5)	E_{AR}	0.048	mJ
Power Dissipation (Nota 3)		P_D	1.9	W
Channel Temperature		T_{CH}	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. Ensure that the channel temperature does not exceed 150°C.
3. Device mounted on a glass-epoxy board FR-4,25.4×25.4×0.8(unit: mm)
4. V_{DD}=24V, T_{CH} =25°C (initial), L=0.2mH, I_{AR} = 13A
5. Repetitive rating: pulse width limited by max channel temperature

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Nota 3)	θ_{JA}	65.8	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0V	30			V
		$V_{(BR)DSX}$	I_D=10mA, V_{GS}=−20 V	10			
Drain-Source Leakage Current		I_{DSS}	V_{DS}=30V, V_{GS}=0 V			10	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}=10 V, I_D=1mA	1.3		2.5	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=4.5V, I_D=6.5A		7.5	10	mΩ
			V_{GS}=10V, I_D=6.5A		5.1	6.6	
Forward Transfer Admittance		$\|Y_{FS}\|$	V_{DS}=10V, I_D=6.5A	15	30		S
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{DS}=10V, V_{GS}=0V, f=1MHz		1800		pF
Output Capacitance		C_{OSS}			570		pF
Reverse Transfer Capacitance		C_{RSS}			370		pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	V_{DD}≈24V, V_{GS}=10V, I_D=13 A		42		nC
Gate to Source Charge		Q_{GS}			6.5		nC
Gate to Drain Charge		Q_{GD}			14		nC
Turn-ON Delay Time		$t_{D(ON)}$			28		ns
Rise Time		t_R			15		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			54		ns
Fall-Time		t_F			21		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain Reverse Current	Pulse (Note 1)	I_{DRP}				52	A
Forward Voltage (Diode)		V_{DSF}	I_{DR}=13A, V_{GS}=0V			-1.2	V

Note: 1. Ensure that the channel temperature does not exceed 150°C.