



UGN70R150

Advance

POWER MOSFET

GALLIUM NITRIDE (GaN) ENHANCEMENT-MODE POWER TRANSISTOR

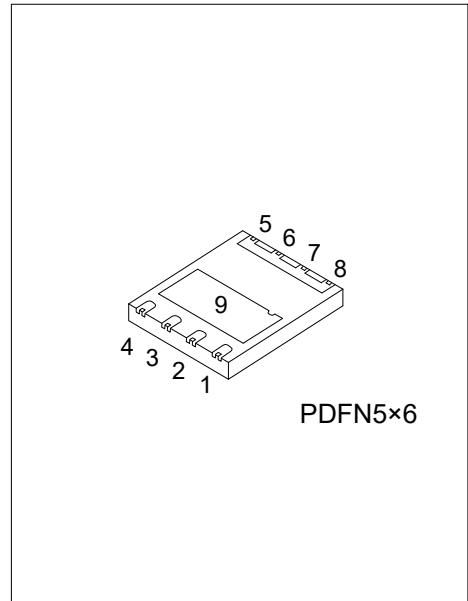
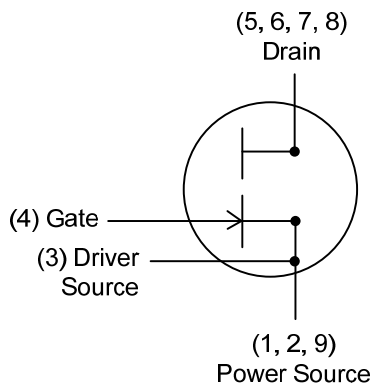
DESCRIPTION

The UTC **UGN70R150** is an enhancement mode GaN HEMT power transistor. Provides high breakdown voltage, high current and high operating speed which is suitable for high power applications.

FEATURES

- * $R_{DS(ON)} \leq 188 \text{ m}\Omega$ @ $V_{GS}=6.0\text{V}$, $I_D=5.0\text{A}$
- * 700V enhancement mode power transistor
- * High operating frequency

SYMBOL



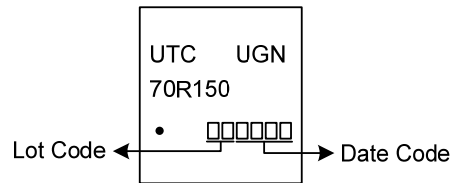
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment									Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	9	
UGN70R150L-P5060-R	UGN70R150G-P5060-R	PDFN5x6	S	S	S	G	D	D	D	D	S	Tape Reel

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

UGN70R150G-P5060-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) P5060: PDFN5x6
	(3)Green Package	(3) G: Halogen Free and Lead Free L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING ($T_C=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V _{DSS}	700	V
Transient Drain to Source Voltage (Note 2)			V _{(TR)DSS}	800	V
Gate-Source Voltage			V _{GSS}	-6 ~ +7	V
Drain Current	Continuous	T _C =25°C	I _D	13	A
		T _C =100°C		8.3	A
	pulse width:10μs, V _{GS} =6V (Note 3)		I _{DM}	23.1	A
Power Dissipation			P _D	78	W
Junction Temperature			T _J	-40 ~ +150	°C
Storage Temperature Range			T _{STG}	-40 ~ +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. In off-state, spike duty cycle $D < 0.01$, spike duration $< 1\mu\text{s}$.

3. Defined by product design and characterization. Value is not tested to full current in production.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	68	$^{\circ}\text{C/W}$
Junction to Case	θ_{JC}	1.6	$^{\circ}\text{C/W}$

Note: Device on 1 layer PCB.

■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =100μA, V _{GS} =0V	700			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =700V, V _{GS} =0V		0.5	5.0	μA
		V _{DS} =700V, V _{GS} =0V, T _J =150°C		6.0		μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =6V, V _{DS} =0V		85		μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =1mA	1.1	1.5	2.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =6.0V, I _D =5.0A		145	188	mΩ
		V _{GS} =6.0V, I _D =5.0A, T _J =125°C		319		mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =400V, V _{GS} =0V, f=1.0MHz		140		pF
Output Capacitance	C _{OSS}			26		pF
Reverse Transfer Capacitance	C _{RSS}			2		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note 1)	Q _G	V _{DS} =400V, V _{GS} =6V, I _D =5.0A		3.9		nC
Gate to Source Charge	Q _{GS}			0.35		nC
Output charge	Q _{OSS}	V _{DS} =400V, V _{GS} =0V		34.3		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Reverse Recovery Charge	Q _{rr}	V _{DS} =400V, I _D =5.0A		0		μC

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