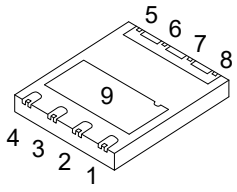
UGN70R150

Advance ***POWER MOSFET***

GALLIUM NITRIDE (GaN) ENHANCEMENT-MODE POWER TRANSISTOR



PDFN5×6

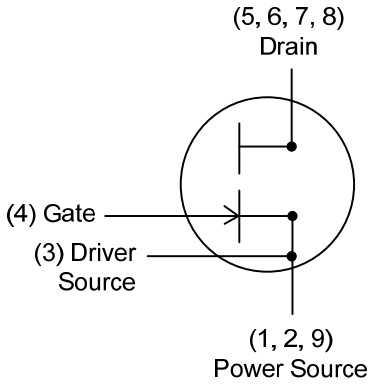
■ DESCRIPTION

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

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

■ SYMBOL



■ ORDERING INFORMATION

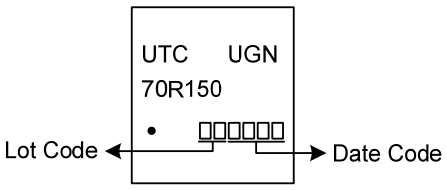
Ordering Number		Package	Pin Assignment									Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	9	
UGN70R150L-P5060-R	UGN70R150G-P5060-R	PDFN5×6	S	S	S	G	D	D	D	D	S	Tape Reel

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

UGN70R150G-P5060-R

(1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) P5060: PDFN5×6
(3)Green Package	(3) G: Halogen Free and Lead Free L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_C=25°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 < 1μs.
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	°C/W
Junction to Case	θ_{JC}	1.6	°C/W

Note: Device on 1 layer PCB.

■ ELECTRICAL CHARACTERISTICS (T_J=25°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