# **UTC** UNISONIC TECHNOLOGIES CO., LTD

## **URFP150**

Preliminary

## 41A, 100V N-CHANNEL POWER MOSFET

#### DESCRIPTION

The UTC **URFP150** is an N-channel enhancement MOSFET using UTC's advanc ed techn ology to provide the customers with a minimum on-state resistance and high switching speed.

#### FEATURES

\*  $R_{DS(ON)}$ <55m $\Omega$  @  $V_{GS}$ =10V, $I_D$ =25A

\* High Switching Speed

### ORDERING INFORMATION

Ordering Number		Deekege	Pin Assignment			Deaking	
Lead Free	Halogen Free	Раскаде	1	2	3	Packing	
URFP150L-T47-T	URFP150G-T47-T	TO-247	G	D	S	Tube	
Note: Pin Assignment: G: Gate D: Drain S: Source							
URFP150L-T47-T (1)Packing Type (2)Package Type (3)Lead Free		(1) T: Tube (2) T47: TO-24 (3) G: Haloger	47 n Free, L:	Lead Fre	е		



#### **ABSOLUTE MAXIMUM RATINGS**

PARAMETER SYMBOL			RATINGS	UNIT
Drain-Source Voltage		V <sub>DSS</sub> 100		V
Gate-Source Voltage		V <sub>GSS</sub> ±20		V
Continuous Drain Current	Continuous	ID	41	А
	Pulsed	I <sub>DM</sub>	160	А
Avalanche Current		I <sub>AR</sub>	41	Α
Single Pulsed Avalanche E	Energy (Note 2)	E <sub>AS</sub>	830	mJ
Power Dissipation		P <sub>D</sub> 192		W
Junction Temperature		TJ	-55~+150	°C
Storage Temperature		Tstg	-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.  $L = 740 \,\mu$  H,  $I_{AS} = 41$ A,  $V_{DD} = 25$ V,  $R_{G} = 25 \,\Omega$ 

2.

#### **ELECTRICAL CHARACTERISTICS**

PARAMETER		SYMBOL	TEST CONDITIONS MIN TY		TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV <sub>DSS</sub> I	<sub>D</sub> =250µA 100				V
Drain-Source Leakage Current		I <sub>DSS</sub>	V <sub>DS</sub> =80V			10	μA
Gate-Source Leakage Current	Forward	I <sub>GSS</sub>	V <sub>GS</sub> =+20V			+100	nA
	Reverse V		<sub>GS</sub> =-20V			-100	nA
ON CHARACTERISTICS				-			
Gate Threshold Voltage		V <sub>GS(TH)</sub>	I <sub>D</sub> =250μΑ	2		4	V
Static Drain-Source On-State Resistance		R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =25A			55	mΩ
DYNAMIC PARAMETERS							
Input Capacitance	put Capacitance				2800		pF
Output Capacitance		C <sub>OSS</sub>	V <sub>GS</sub> -0V, V <sub>DS</sub> -23V, f=1 0МН <del>7</del>		1100		pF
Reverse Transfer Capacitance		C <sub>RSS</sub>			280		pF
SWITCHING PARAMETERS							
Total Gate Charge		$Q_G$	V			140	nC
Gate to Source Charge		Q <sub>GS</sub>	$V_{DD} = 30V, V_{GS} = 10V,$			29	nC
Gate to Drain Charge		$Q_{GD}$	$10-4$ 1 $\Lambda$ , $10-100$ $\mu\Lambda$ ,			68	nC
Turn-ON Delay Time		t <sub>D(ON)</sub>			16		ns
Rise Time		t <sub>R</sub>	$V_{DD}$ =30V, $I_{D}$ =0.5A, $R_{G}$ =25 $\Omega$ ,		120		ns
Turn-OFF Delay Time		t <sub>D(OFF)</sub>	V <sub>GS</sub> =0~10V		60		ns
Fall-Time		t <sub>F</sub>			81		ns
SOURCE- DRAIN DIODE RATII	NGS AND C	HARACTERI	STICS				-
Maximum Body-Diode Continuous Current		ls				41	Α
Maximum Body-Diode Pulsed Current		I <sub>SM</sub>				160	Α
Drain-Source Diode Forward Voltage		$V_{SD}$	I <sub>S</sub> =41A			2.5	V

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