

**iscN-Channel MOSFET Transistor**
**IRFP31N50L**
**• FEATURES**

- Low drain-source on-resistance:  
 $R_{DS(ON)} = 0.18\Omega$  (MAX)
- Enhancement mode:  
 $V_{th} = 3.0$  to  $5.0V$  ( $V_{DS} = 10V$ ,  $I_D = 0.25mA$ )
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• DESCRIPTION**

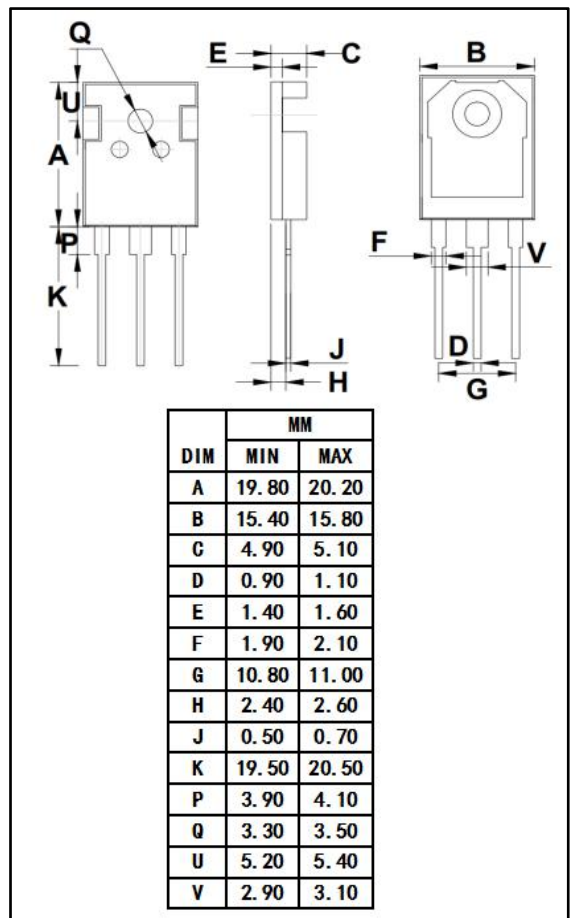
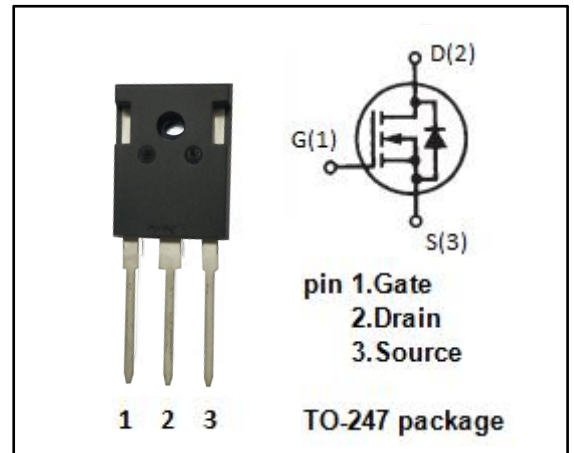
- Switching Voltage Regulators

**• ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ C$ )**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage	500	V
$V_{GS}$	Gate-Source Voltage	$\pm 30$	V
$I_D$	Drain Current-Continuous	31	A
$I_{DM}$	Drain Current-Single Pulsed	124	A
$P_D$	Total Dissipation @ $T_c = 25^\circ C$	460	W
$T_j$	Max. Operating Junction Temperature	-55~150	$^\circ C$
$T_{stg}$	Storage Temperature	-55~150	$^\circ C$

**• THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th(ch-c)}$	Channel-to-case thermal resistance	0.26	$^\circ C/W$



## iscN-Channel MOSFET Transistor

## IRFP31N50L

## ELECTRICAL CHARACTERISTICS

T<sub>c</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V; I <sub>D</sub> = 0.25mA	500			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = 10V; I <sub>D</sub> =0.25mA	3.0		5.0	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> =10V; I <sub>D</sub> =19A			0.18	Ω
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±30V; V <sub>DS</sub> = 0V			± 100	nA
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =500V; V <sub>GS</sub> = 0V V <sub>DS</sub> =400V; V <sub>GS</sub> = 0V; T <sub>J</sub> =125°C			50 2000	uA
V <sub>SDF</sub>	Diode forward voltage	I <sub>DR</sub> =31A, V <sub>GS</sub> = 0 V			1.5	V

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