

# Isc N-Channel MOSFET Transistor

# TK31N60W

**• FEATURES**

- Low drain-source on-resistance:  $R_{DS(ON)} = 0.073 \Omega$  by used to Super Junction Structure : DTMOS
- Easy to control Gate switching
- Enhancement mode:  $V_{th} = 2.7$  to  $3.7$  V
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• Applications**

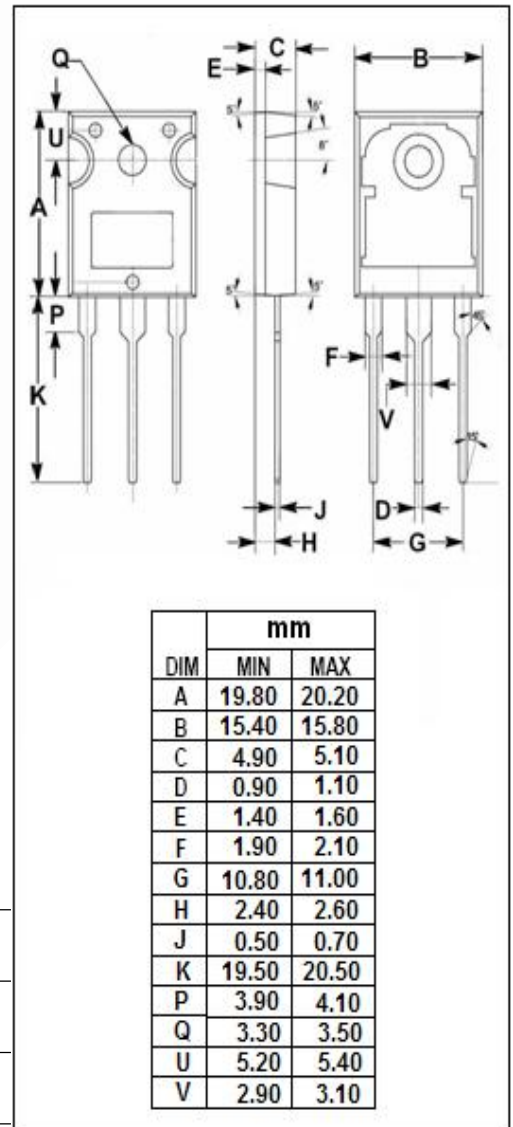
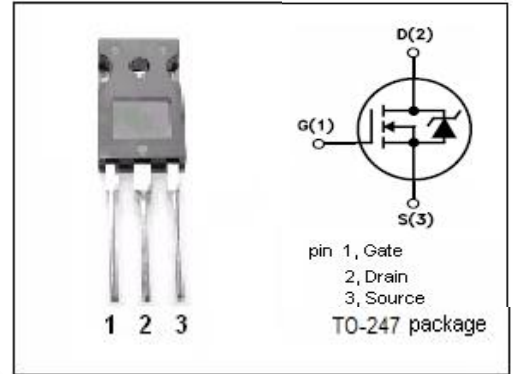
- Switching Voltage Regulators

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage	600	V
$V_{GSS}$	Gate-Source Voltage	$\pm 30$	V
$I_D$	Drain Current-Continuous	30.8	A
$I_{DM}$	Drain Current-Single Pulsed	123	A
$P_D$	Total Dissipation	230	W
$T_{ch}$	Max. Operating Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55~150	$^\circ\text{C}$

**• THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th(ch-c)}$	Channel-to-case thermal resistance	0.54	$^\circ\text{C/W}$
$R_{th(ch-a)}$	Channel-to-ambient thermal resistance	50	$^\circ\text{C/W}$



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**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> = 10mA	600			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = 10V; I <sub>D</sub> =1.5mA	2.7		3.7	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> = 10V; I <sub>D</sub> =15.4A			88	mΩ
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±30V; V <sub>DS</sub> = 0V			±1	μA
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> = 600V; V <sub>GS</sub> = 0V			10	μA
V <sub>SD</sub>	Diode forward voltage	I <sub>SD</sub> =30.8A, V <sub>GS</sub> = 0 V			1.7	V