

# Isc N-Channel MOSFET Transistor

# TK42A12N1, ITK42A12N1

### • FEATURES

- Low drain-source on-resistance:  
 $R_{DS(ON)} = 9.4m\Omega$  ( $V_{GS} = 10V$ )
- Enhancement mode:  
 $V_{th} = 2.0$  to  $4.0V$  ( $V_{DS} = 10V$ ,  $I_D = 1.0mA$ )
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### • DESCRIPTION

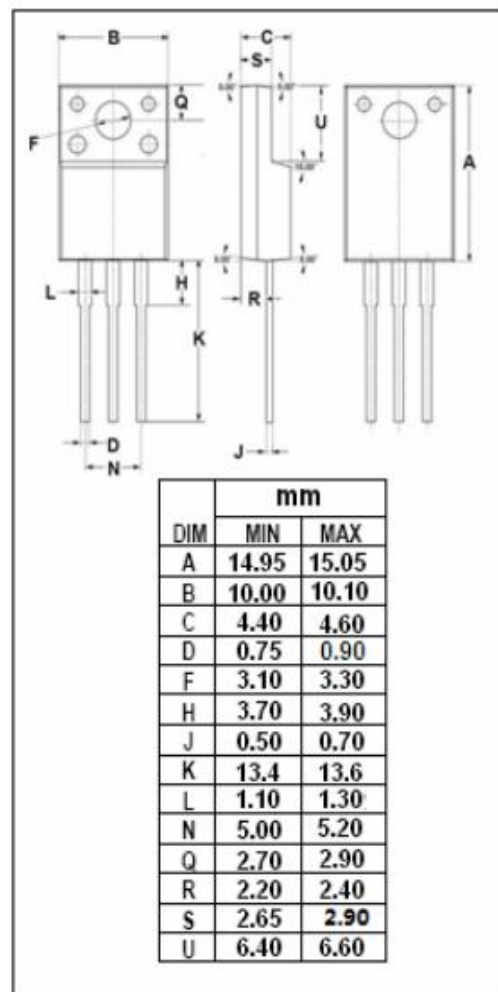
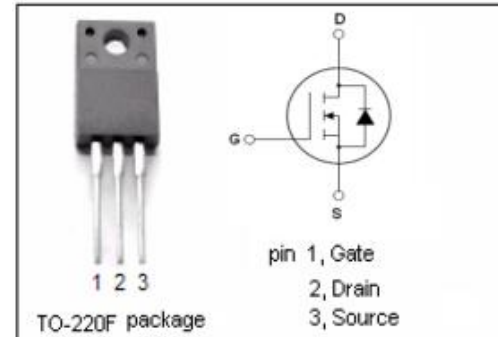
- Switching Voltage Regulators

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage	120	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current-Continuous	42	A
$I_{DM}$	Drain Current-Single Pulsed	167	A
$P_D$	Total Dissipation @ $T_c = 25^\circ C$	35	W
$T_j$	Max. Operating Junction Temperature	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	3.57	$^\circ C/W$
$R_{th(ch-a)}$	Channel-to-ambient thermal resistance	62.5	$^\circ C/W$



**Isc N-Channel MOSFET Transistor****TK42A12N1, ITK42A12N1****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V; I_D=10mA$	120			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=10V; I_D=1.0mA$	2.0		4.0	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V; I_D=21A$			9.4	$m\Omega$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V; V_{DS}=0V$			$\pm 0.1$	$\mu A$
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=120V; V_{GS}=0V$			10	$\mu A$
$V_{SDF}$	Diode forward voltage	$I_{DR}=42A, V_{GS}=0V$			1.2	V

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