

isc N-Channel MOSFET Transistor

STW13NK100Z

FEATURES

- Drain Current : $I_D = 12A @ T_C = 25^\circ C$
- Drain Source Voltage
: $V_{DS} = 1000V(\text{Min})$
- Static Drain-Source On-Resistance
: $R_{DS(on)} = 1.0 \Omega (\text{Max}) @ V_{GS} = 10V$
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

DESCRIPTION

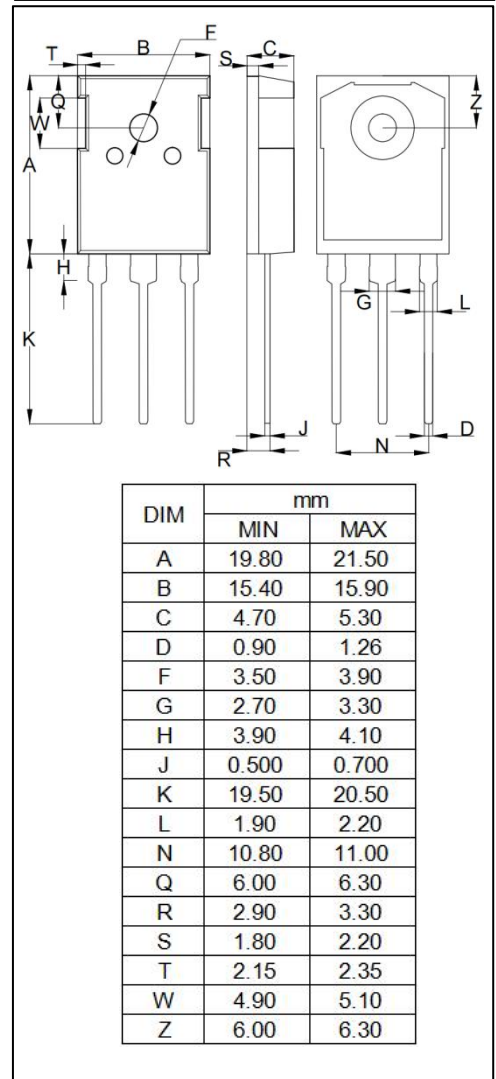
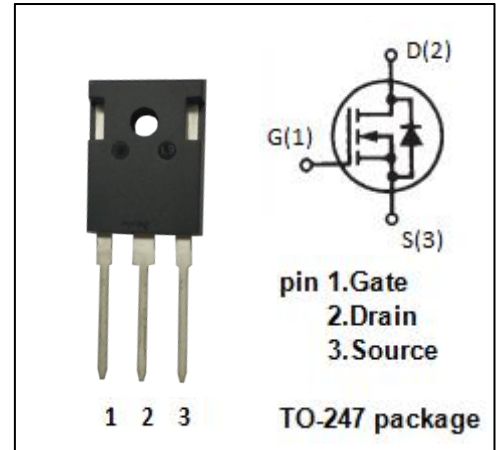
- motor drive, DC-DC converter, power switch and solenoid drive.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{DS}	Drain-Source Voltage	1000	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Drain Current-Continuous; @ $T_C = 25^\circ C$	12	A
I_{DM}	Drain Current-Single Pulsed	48	A
P_D	Total Dissipation	463	W
T_j	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	0.25	$^\circ C/W$



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V; I _D = 0.25mA	1000			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ; I _D = 0.25mA	2.5		4.5	V
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = 10V; I _D = 6A			1.0	Ω
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V; V _{DS} = 0V			± 100	nA
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 1000V; V _{GS} = 0V			1.0	uA
C _{iss}	Input Capacitance	V _{GS} = 0V, V _{DS} = 25V, f = 1.0MHz	-	3750	-	pF
C _{oss}	Output Capacitance		-	240	-	
C _{rss}	Reverse Transfer Capacitance		-	30	-	
Q _g	Total Gate Charge	V _{DD} = 500V, I _D = 12A, V _{GS} = 10V	-	73	-	nC
Q _{gs}	Gate-Source Charge		-	16	-	
Q _{gd}	Gate-Drain Charge		-	27	-	
t _{d(on)}	Turn-on Delay Time	V _{DD} = 500V, I _D = 12A, R _G = 9.1Ω , V _{GS} = 10V	-	35	-	ns
t _r	Turn-on Rise Time		-	36	-	
t _{d(off)}	Turn-off Delay Time		-	44	-	
t _f	Turn-off Fall Time		-	35	-	

Drain - Source Body Diode Characteristics

I _{SD}	Continuous Source Current	T _C = 25 °C	-	-	12	A
I _{SM}	Pulsed Source Current		-	-	48	
V _{SD}	Diode Forward Voltage	I _{SD} = 12A; V _{GS} = 0V	-	-	1.5	V
t _{rr}	Reverse Recovery Time	V _{GS} = 0V, I _S = 12A,	-	-	850	ns
Q _{rr}	Reverse Recovery Charge	di/dt = 100A /μs	-	-	4.4	uC

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