

# isc N-Channel MOSFET Transistor

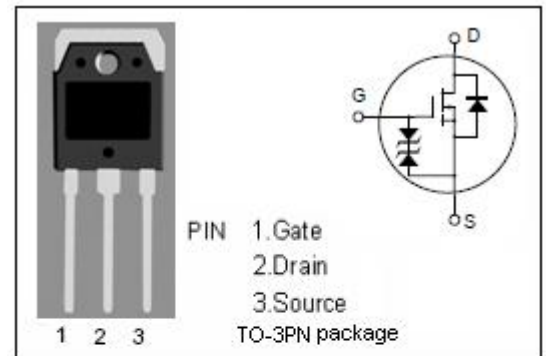
## 2SK2038

### DESCRIPTION

- Drain Current  $I_D = 5A @ T_C = 25^\circ C$
- Drain Source Voltage  
:  $V_{DSS} = 800V(\text{Min})$
- Fast Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

- Switching regulators
- UPS
- DC-DC converters
- General purpose power amplifier

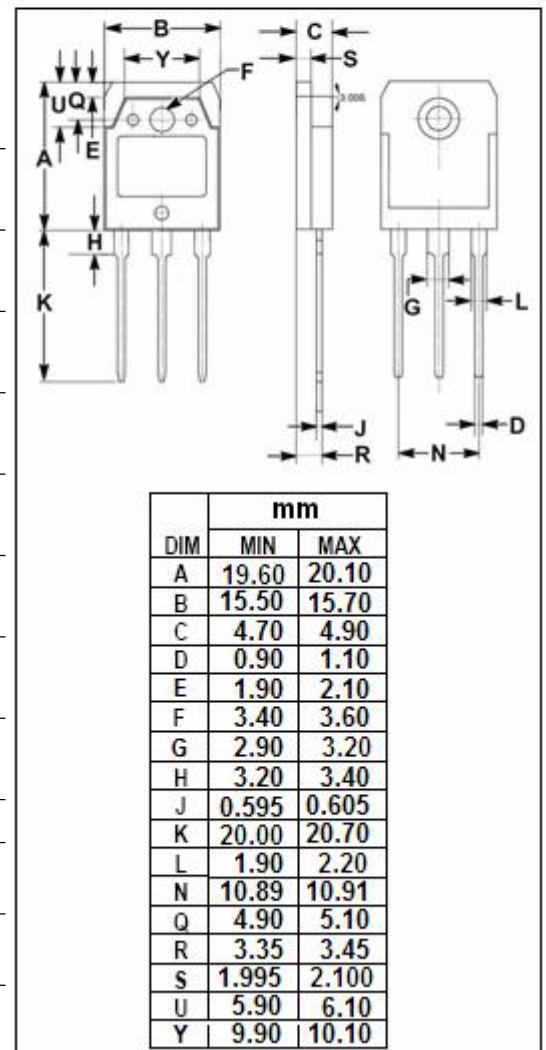


### ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ C$ )

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage ( $V_{GS}=0$ )	800	V
$V_{GS}$	Gate-Source Voltage	$\pm 30$	V
$I_D$	Drain Current-continuous@ $T_C = 25^\circ C$	5	A
$I_{D(puls)}$	Pulsed drain current	15	A
$P_{tot}$	Total Dissipation@ $T_C = 25^\circ C$	125	W
$T_j$	Max. Operating Junction Temperature	150	$^\circ C$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ C$

### • THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1	$^\circ C/W$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	50	$^\circ C/W$



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• ELECTRICAL CHARACTERISTICS (T<sub>c</sub>=25°C)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = 0; I <sub>D</sub> = 10mA	800			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =10V; I <sub>D</sub> =1mA	1.5		3.5	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> = 10V; I <sub>D</sub> = 3A		1.8	2.2	Ω
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±30V; V <sub>DS</sub> = 0			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 640V; V <sub>GS</sub> = 0			300	μA
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =25V;		610	870	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	V <sub>GS</sub> =0V; f <sub>r</sub> =1MHz		60	100	
C <sub>oss</sub>	Output Capacitance			110	165	
t <sub>r</sub>	Rise Time	V <sub>GS</sub> =10V;		30	60	ns
t <sub>on</sub>	Turn-on Time	I <sub>D</sub> =3A;		70	140	
t <sub>f</sub>	Fall Time	V <sub>DD</sub> =200V; R <sub>L</sub> =66.7 Ω		35	70	
t <sub>off</sub>	Turn-off Time			165	330	

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