

# isc N-Channel MOSFET Transistor

## 2SK2057

### DESCRIPTION

- Drain Current  $I_D = 20A @ T_C = 25^\circ C$
- Drain Source Voltage-  
:  $V_{DSS} = 500V(\text{Min})$
- Fast Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

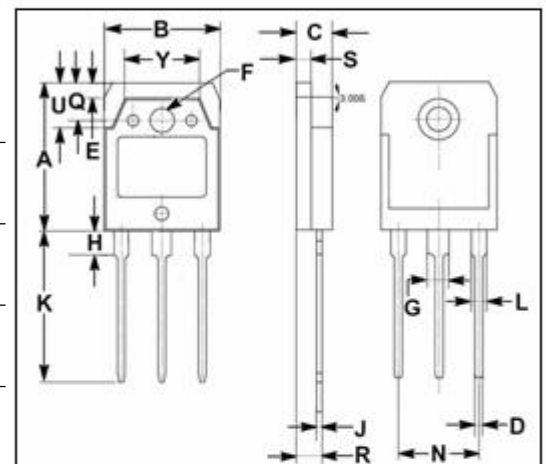
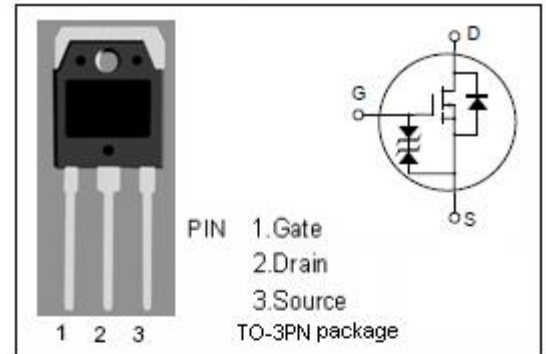
- Switching regulators
- General purpose power amplifier

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{DSS}$	Drain-Source Voltage ( $V_{GS}=0$ )	500	V
$V_{GS}$	Gate-Source Voltage	$\pm 30$	V
$I_D$	Drain Current-continuous@ $T_C = 25^\circ C$	20	A
$I_{D(\text{puls})}$	Pulsed Drain Current	80	A
$P_{\text{tot}}$	Total Dissipation@ $T_C = 25^\circ C$	150	W
$T_j$	Max. Operating Junction Temperature	150	$^\circ C$
$T_{\text{stg}}$	Storage Temperature Range	-55~150	$^\circ C$

### • THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{\text{th j-c}}$	Thermal Resistance, Junction to Case	0.833	$^\circ C/W$
$R_{\text{th j-a}}$	Thermal Resistance, Junction to Ambient	50	$^\circ C/W$



DIM	mm	
	MIN	MAX
A	19.60	20.10
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.20
H	3.20	3.40
J	0.595	0.605
K	20.00	20.70
L	1.90	2.20
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.100
U	5.90	6.10
Y	9.90	10.10

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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	500			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =10V; I <sub>D</sub> =1mA	2.0		4.0	V
R <sub>DS(on)</sub>	Drain-Source On-Resistance	V <sub>GS</sub> = 10V; I <sub>D</sub> = 10A		0.24	0.3	Ω
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> = ±25V; V <sub>DS</sub> = 0			± 10	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = 500V; V <sub>GS</sub> = 0			100	μA
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =10V;		3000	4800	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	V <sub>GS</sub> =0V; f <sub>r</sub> =1MHz		220	270	
C <sub>oss</sub>	Output Capacitance			830	1200	
t <sub>r</sub>	Rise Time	V <sub>GS</sub> =10V;		25	50	ns
t <sub>on</sub>	Turn-on Time	I <sub>D</sub> =3A;		60	120	
t <sub>f</sub>	Fall Time	V <sub>DD</sub> =200V; R <sub>L</sub> =10 Ω		55	110	
t <sub>off</sub>	Turn-off Time			280	560	

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