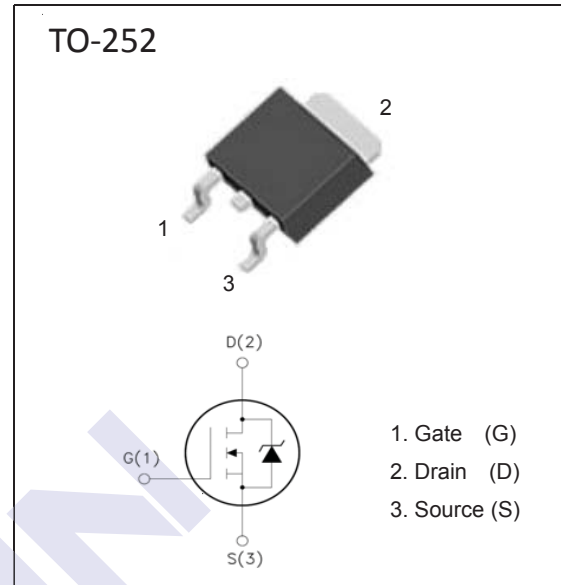


## N-Channel MOSFET

## 2KK5057

### ■ Features

- $R_{DS(ON)} < 45m\Omega$  @  $V_{GS}=10V, I_D=20A$
- High Switching Speed
- High Current Capacity



### ■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	150	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	40	A
Pulsed Drain Current	$I_{DM}$	180	
Single Pulse Avalanche Energy	$E_{AS}$	650	mJ
Repetitive Avalanche Energy	$E_{AR}$	21	
Peak Diode Recovery $dv/dt$	$dv/dt$	7	V/ns
Thermal Resistance, Junction-to-Ambient	$R_{\theta JC}$	62.5	$^{\circ}C/W$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.1	
Maximum Power Dissipation	$P_D$	136	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 150	$^{\circ}C$

## N-Channel MOSFET

## 2KK5057

## ■ Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=250\mu A$ , $V_{GS}=0V$	150			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=150V$ , $V_{GS}=0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0V$ , $V_{GS}=\pm 20V$			$\pm 100$	nA
<b>On Characteristics</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu A$	2.5		4.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ , $I_D=20A$			45	m $\Omega$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{GS}=0V$ , $V_{DS}=25V$ , $f=1MHz$		2500		pF
Output Capacitance	$C_{oss}$			520		
Reverse Transfer Capacitance	$C_{rss}$			100		
<b>Switching Characteristics</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V$ , $I_D=0.5A$ , $V_{GS}=0\sim 10V$ , $R_G=25\Omega$		35		ns
Turn-On Rise Time	$t_r$			320		
Turn-Off Delay Time	$t_{d(off)}$			210		
Turn-Off Fall Time	$t_f$			200		
Total Gate Charge	$Q_g$	$V_{DS}=50V$ , $I_D=1.3A$ , $V_{GS}=10V$ , $I_G=100\mu A$		85		nC
Gate Source Charge	$Q_{gs}$			15		
Gate Drain Charge	$Q_{gd}$			41		
<b>Drain-Source Diode Characteristics</b>						
Body Diode Voltage	$V_{SD}$	$I_S=40A$ , $V_{GS}=0V$			1.48	V
Diode Forward Current	$I_S$				40	A
Body Diode Reverse Recovery Time	$t_{rr}$	$V_{GS}=0V$ , $I_S=30A$ , $di/dt=100A/\mu s$		150		ns
Body Diode Reverse Recovery Charge	$Q_{rr}$			0.9		$\mu C$

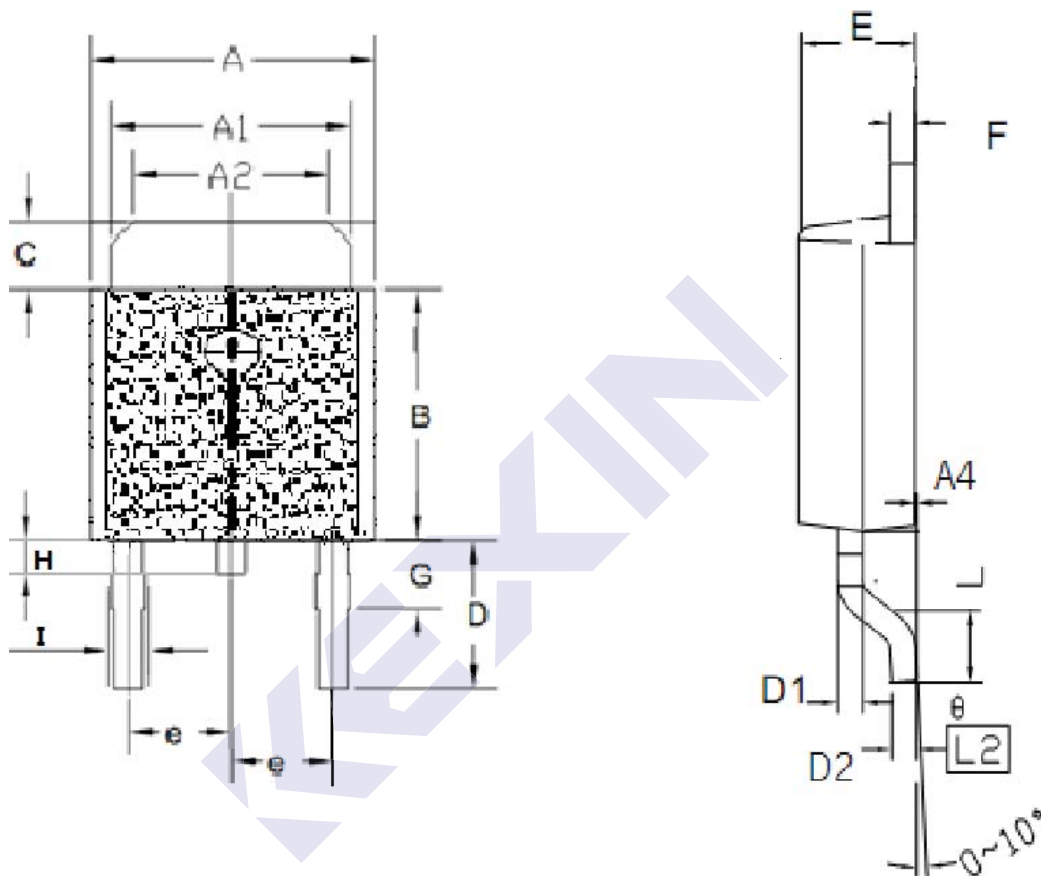
## N-Channel MOSFET

2KK5057

## ■ Package Dimension

TO-252

Units: mm



Symbol	Min	Max	Symbol	Min	Max
A	6.40	6.60	D	2.90	3.10
A1	5.20	5.40	D1	0.45	0.55
A2	4.40	4.60	D2	0.45	0.55
A3	4.40	4.60	e	2.30	
A4	0.00	0.15	E	2.20	2.40
A5	4.65	4.95	F	0.49	0.59
B	6.00	6.20	G	1.70	
B1	1.57	1.77	L	1.40	1.60
C	0.90	0.96	$\theta(^{\circ})$	0.00	10.00
I	0.60	0.90	H	0.49	0.52