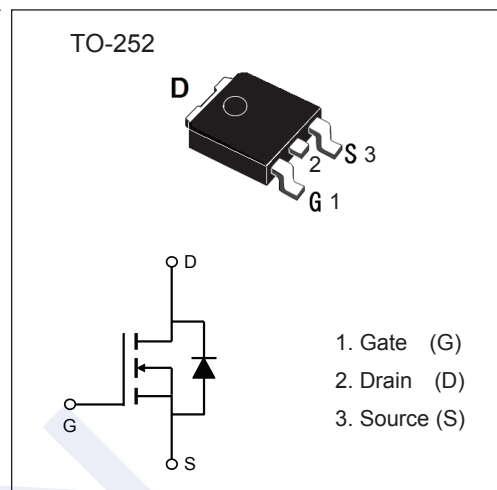


N-Channel MOSFET

2KK5056

■ Features

- $V_{DS} (V) = 40 V$
- $I_D = 60 A$
- $R_{DS(ON)}$ (at $V_{GS} = 10 V$) $< 8 m\Omega$
- $R_{DS(ON)}$ (at $V_{GS} = 4.5 V$) $< 10.5 m\Omega$

■ Absolute Maximum Ratings ($T_C = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	60	A
Pulsed Drain Current (Note 1)	I_{DM}	200	
Single Pulse Avalanche Energy (Note 2)	E_{AS}	142	mJ
Peak Diode Recovery dv/dt (Note 3)	dv/dt	7	V/ns
Power Dissipation	P_D	40	W
Thermal Resistance, Junction- to-Ambient	$R_{\theta JA}$	110	$^\circ C/W$
Thermal Resistance, Junction- to-Case	$R_{\theta JC}$	3.125	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. $V_{DD}=25V, L=0.1mH, I_{AS}=53.2A, R_G=25\Omega$, Starting $T_J = 25^\circ C$.
3. $I_{SD} \leq 30A, di/dt \leq 200A/\mu s, V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ C$.

N-Channel MOSFET

2KK5056

■ Electrical Characteristics (T_c = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BVDSS	ID = 250 μA, VGS = 0V	40			V
Zero Gate Voltage Drain Current	IDSS	Vbs = 40 V, VGS = 0 V			1	μA
		VDS = 32 V, VGS = 0 V, TJ=125℃			10	
Gate to Source Leakage Current	IGSS	VDS = 0 V, VGS = ±20 V			±100	nA
On Characteristics (Note 1)						
Gate to Source Threshold Voltage	VGS(th)	VDS = VGS , ID = 250μA	1.0		2.5	V
Static Drain-Source On-Resistance	RDS(on)	VGS = 10 V, ID = 25 A			8	mΩ
		VGS = 4.5 V, ID = 20 A			10.5	
Dynamic Characteristics (Note 1)						
Input Capacitance	Ciss	VGS = 0 V, VDS = 20 V, f = 1 MHz		4500		pF
Output Capacitance	Coss			800		
Reverse Transfer Capacitance	Crss			350		
Switching Characteristics (Note 1)						
Total Gate Charge	Qg	VGS = 10V, VDS = 32 V, ID = 50 A (Note 2)		82		nC
Gate Source Charge	Qgs			24		
Gate Drain Charge	Qgd			18		
Turn-On DelayTime	td(on)	VGS = 10V, VDD = 20 V, ID = 50A, RG = 25 Ω (Note 2)		40		ns
Turn-On Rise Time	tr			50		
Turn-Off DelayTime	td(off)			204		
Turn-Off Fall Time	tr			120		
Drain-Source Diode Characteristics						
Body Diode Reverse Recovery Time	trr	Is = 30A, di/dt = 100 A/μs		53		ns
Body Diode Reverse Recovery Charge	Qrr			80		nC
Maximum Body-Diode Continuous Current	Is	VG=VD=0V , Force Current			50	A
Diode Forward Voltage	VSD	VGS = 0 V, Is = 1 A			1	V

Notes:

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
2. Essentially independent of operating ambient temperature.

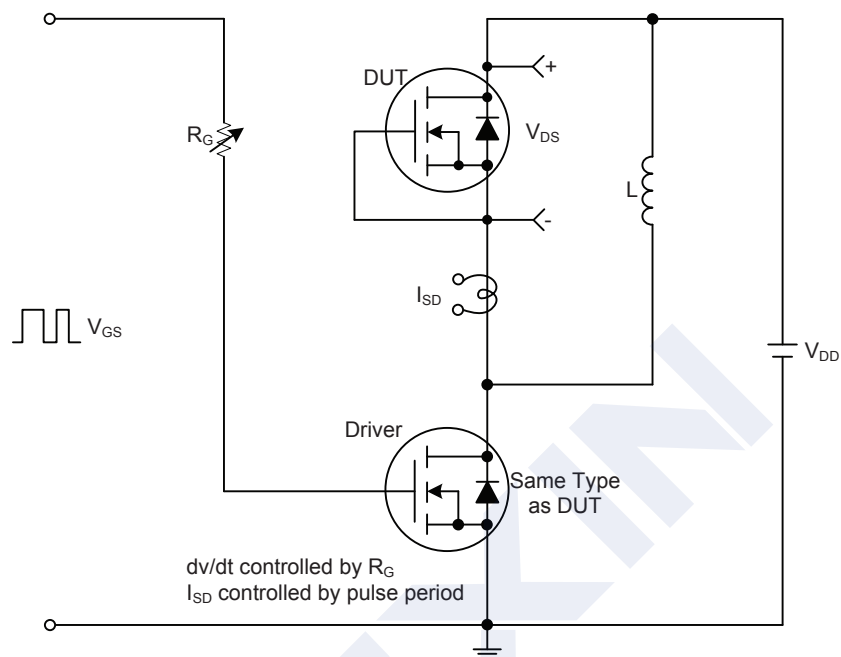
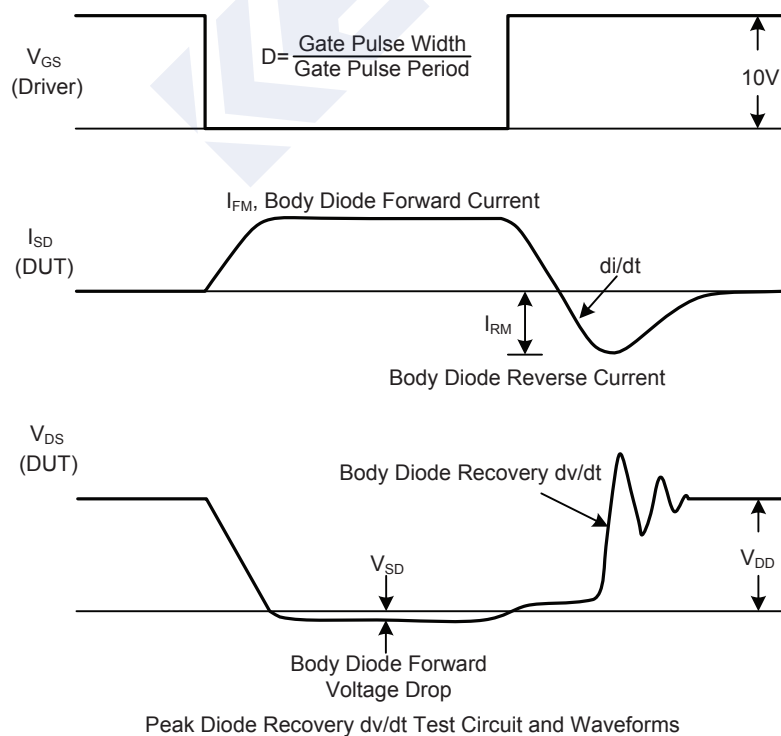
■ Marking

Marking	K5056 KC***
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N-Channel MOSFET

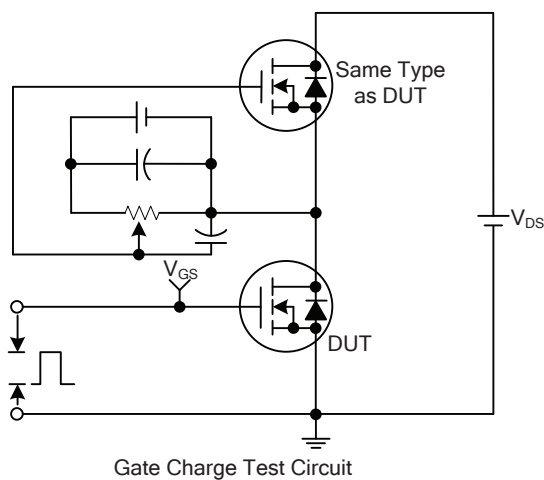
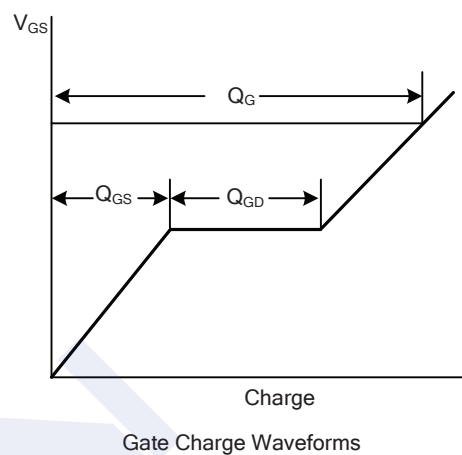
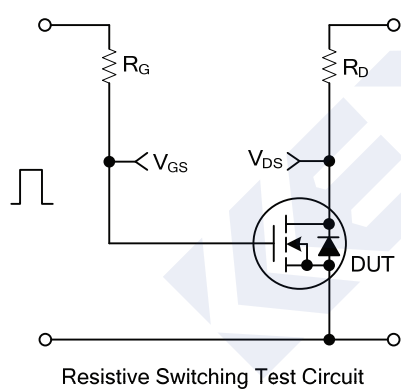
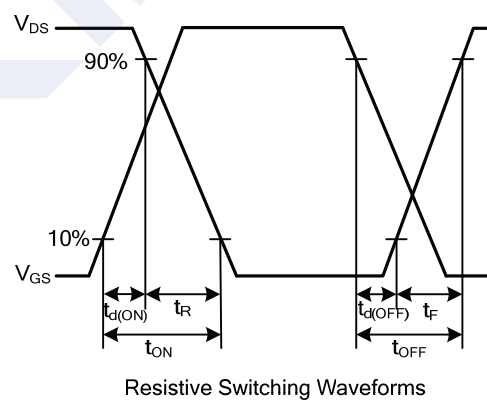
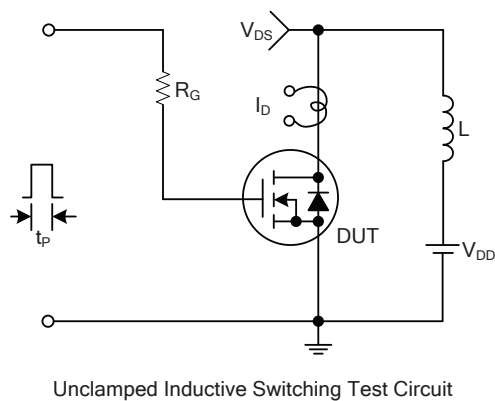
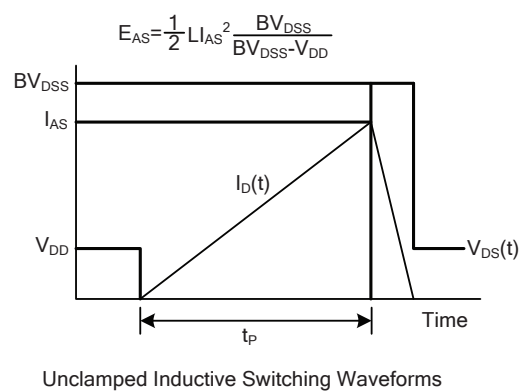
2KK5056

■ Test Circuits And Waveforms



N-Channel MOSFET

2KK5056



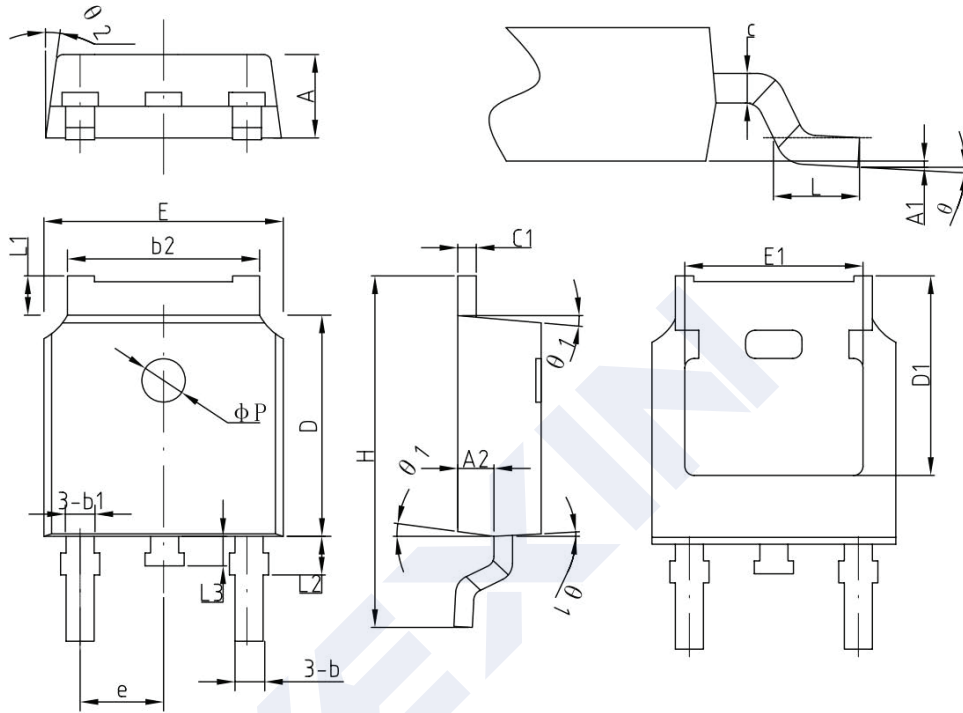
N-Channel MOSFET

2KK5056

■ Package Dimension

TO-252

Units: mm



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.2	2.30	2.38
A1	0	—	0.10
A2	0.90	1.01	1.10
b	0.71	0.76	0.86
b1		0.76	
b2	5.13	5.33	5.46
c	0.47	0.50	0.60
c1	0.47	0.50	0.60
D	6.0	6.10	6.20
D1	—	5.30	—
E	6.50	6.60	6.70
E1	—	4.80	—
e	2.286BSC		
H	9.70	10.10	10.40
L	1.40	1.50	1.70
L1	0.90	—	1.25
L2		1.05	
L3		0.8	
φP		1.2	
θ	0°	—	8°
θ 1	5°	7°	9°
θ 2	5°	7°	9°