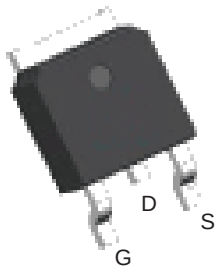
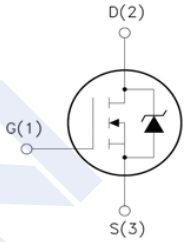
N-Channel MOSFET

2KK5116

TO-252





1. Gate (G)
2. Drain (D)
3. Source (S)

■ Features

- V_{DSS} = 100V
- I_D = 33A
- $R_{DS(ON)}$ = 19.5mΩ (typ.) @ V_{GS}=10V
- $R_{DS(ON)}$ = 20.5mΩ (typ.) @ V_{GS}=4.5V
- Avalanche
- Reliable

■ Absolute Maximum Ratings (T_C=25°C Unless Otherwise Noted)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C = 25℃	I_D	33	A
	T_C = 100℃		22	
Pulsed Drain Current (Note 1)		I_{DM}	130	
Single Pulse Avalanche Energy (Note 2)		E_{AS}	190	mJ
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	110	℃/W
Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	2.3	
Maximum Power Dissipation	T_C = 25℃	P_D	54	W
	T_C = 100℃		21.7	
Operating Junction and Storage Temperature Range		T_J,T_{stg}	-55 to 150	℃

Notes

1. Repetitive rating ; pulse width limited by junction temperature.
2. L = 0.5mH, V_D=80V.

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■ Electrical Characteristics (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
		V_{DS}=100V, V_{GS}=0V, T_J=85°C			30	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	1.0		3.0	V
Static Drain-Source On-Resistance (Note 1)	$R_{DS(on)}$	V_{GS}=10V, I_D=16A		19.5	24	mΩ
		V_{GS}=4.5V, I_D=16A		20.5	26	
Gate Resistance	R_G	V_{GS}=0V,V_{DS}=0V,F=1MHz		1.2		Ω
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		3900		pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			102		
Turn-On DelayTime	$t_{d(on)}$	V_{DD}=50V, I_D=16A, R_G=3Ω, V_{GS}=10V (Note 2)		36		ns
Turn-On Rise Time	t_r			15		
Turn-Off DelayTime	$t_{d(off)}$			79		
Turn-Off Fall Time	t_f			20		
Total Gate Charge	Q_g	V_{DS}=80V, I_D=16A, V_{GS}=10V		90		nC
Gate Source Charge	Q_{gs}			10		
Gate Drain Charge	Q_{gd}			19		
Body Diode Voltage (Note 1)	V_{SD}	I_S=16A,V_{GS}=0V		0.8	1.3	V
Diode Forward Current	I_S				33	A
Body Diode Reverse Recovery Time	t_{rr}	V_{GS}=0V , Is = 16 A, dI/dt = 100 A/μs		40		ns
Body Diode Reverse Recovery Charge	Q_{rr}			75		μC

Notes:

1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
2. Switching characteristics are independent of operating junction temperature.

■ Marking

Marking	K5116 K****

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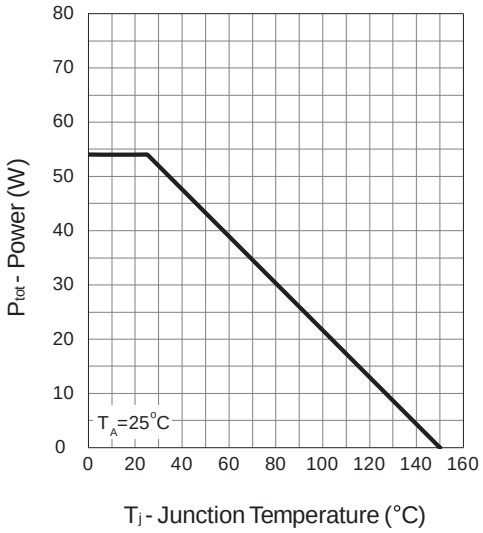
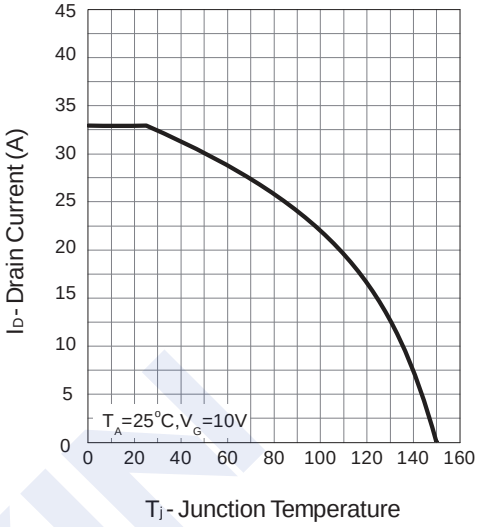
■ Typical Characteristics

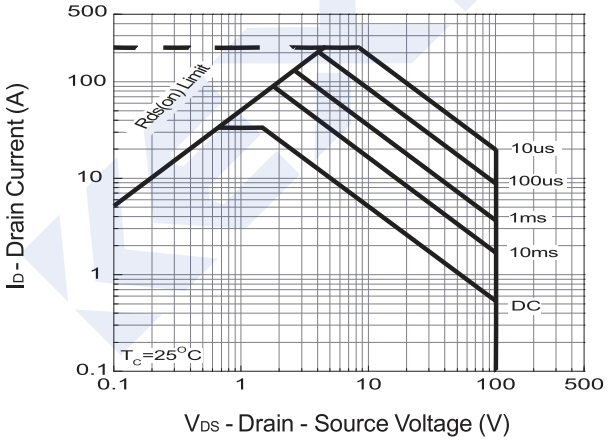
Power Dissipation



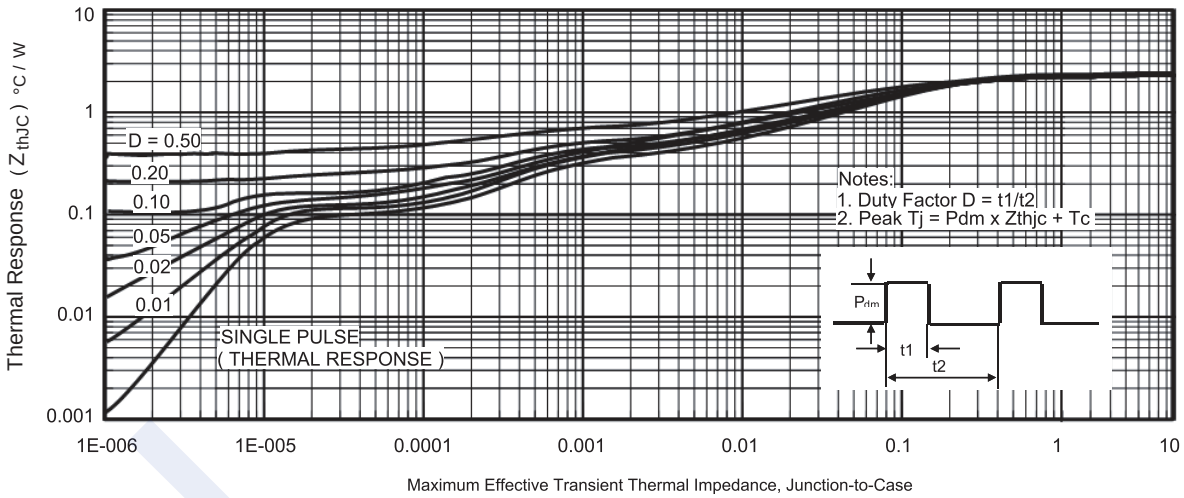
Drain Current



Safe Operation Area



Thermal Transient Impedance



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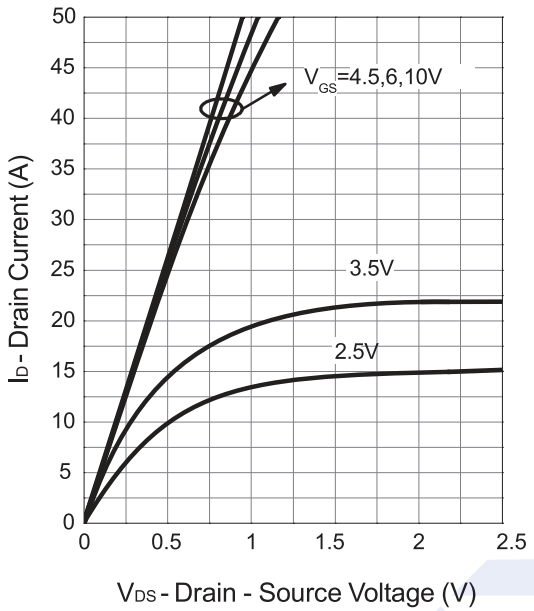
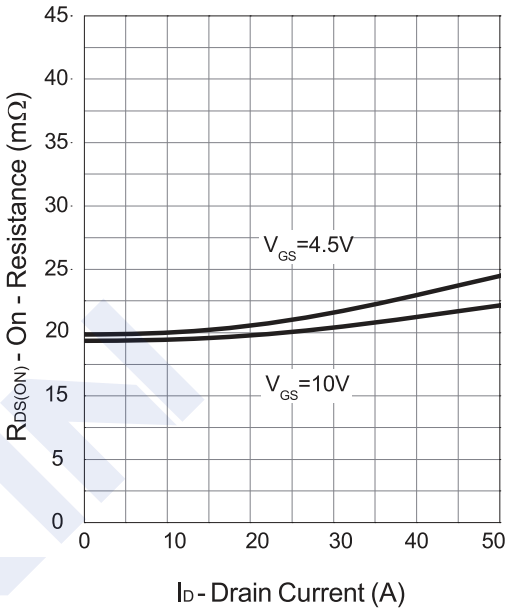
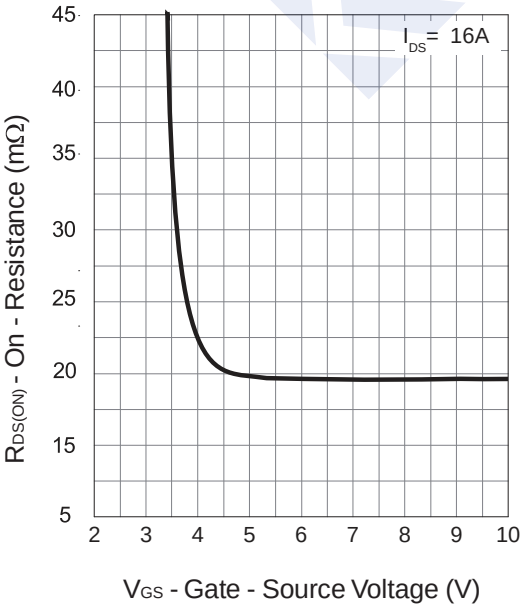
Output Characteristics



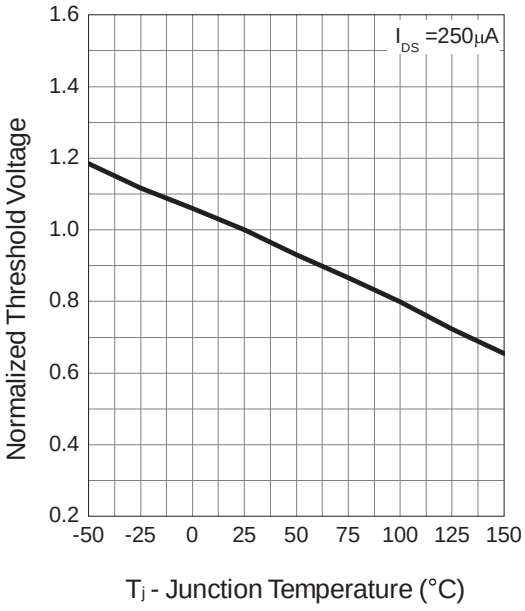
Drain-Source On Resistance



Gate-Source On Resistance



Gate Threshold Voltage



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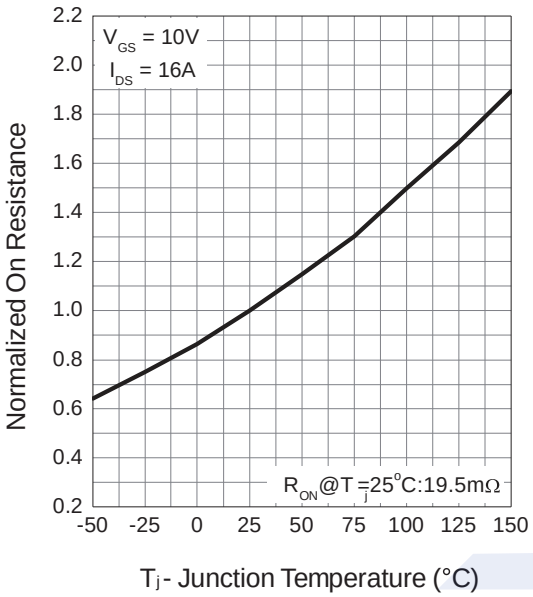
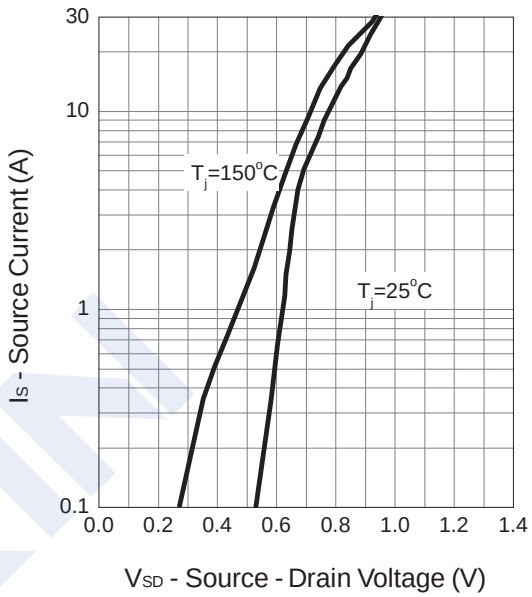
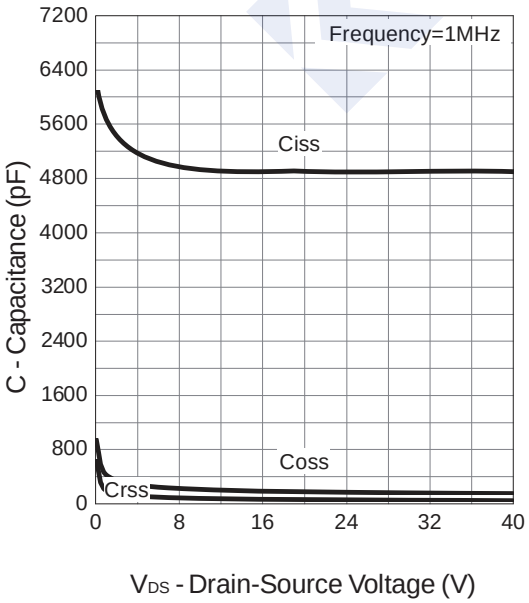
Drain-Source On Resistance



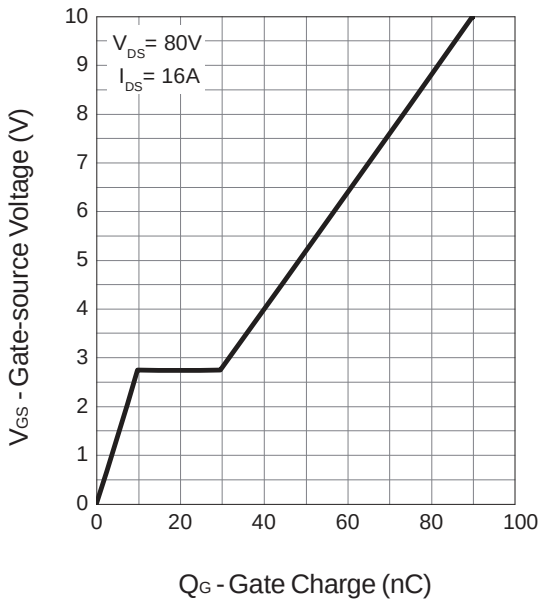
Source-Drain Diode Forward



Capacitance



Gate Charge



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■ Package Dimension

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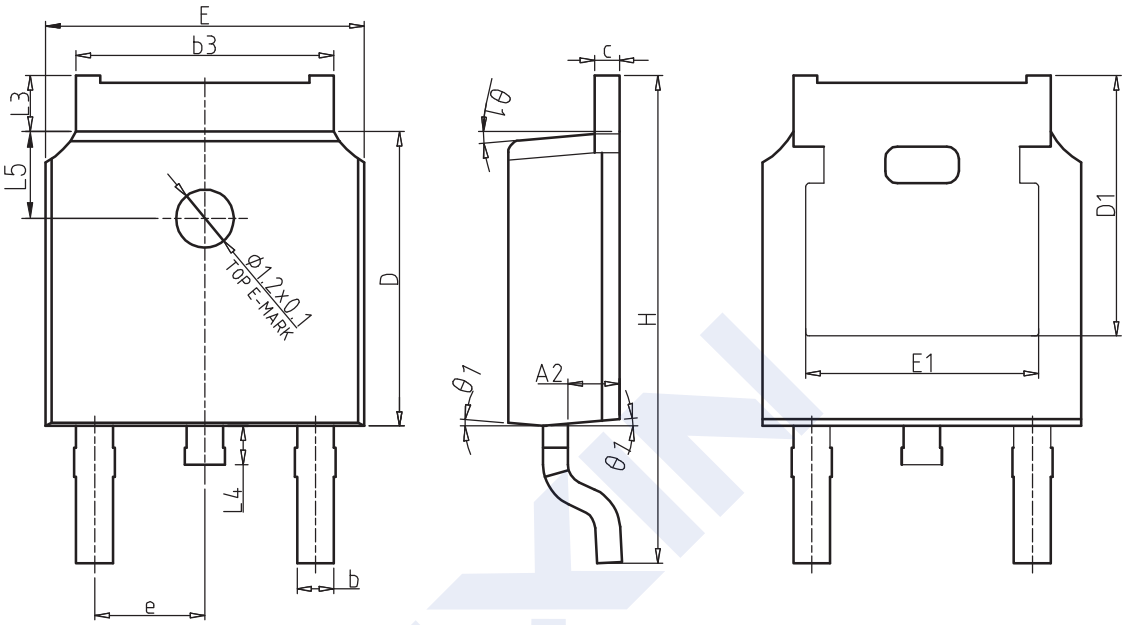

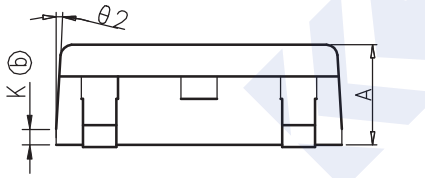

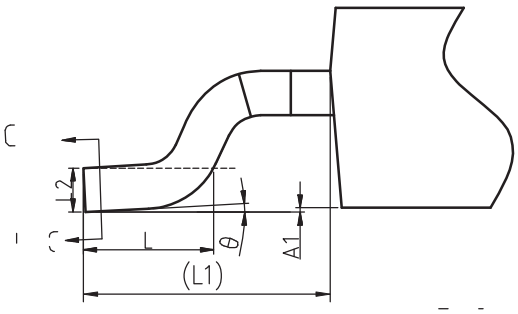

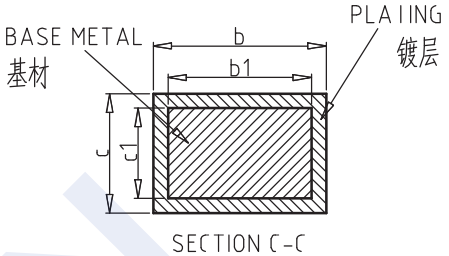

COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0.00	–	0.10
A2	0.97	1.07	1.17
b	0.72	0.78	0.85
b1	0.71	0.76	0.81
b3	5.23	5.33	5.46
c	0.47	0.53	0.58
c1	0.46	0.51	0.56
D	6.00	6.10	6.20
D1		5.30REF	
E	6.50	6.60	6.70
E1	4.70	4.83	4.92
e		2.286BSC	
H	9.90	10.10	10.30
L	1.40	1.50	1.70
L1		2.90REF	
L2		0.51BSC	
L3	0.90	–	1.25
L4	0.60	0.80	1.00
L5	1.70	1.80	1.90
θ	0°	–	8°
θ1	5°	7°	9°
θ2	5°	7°	9°
K		0.40REF	