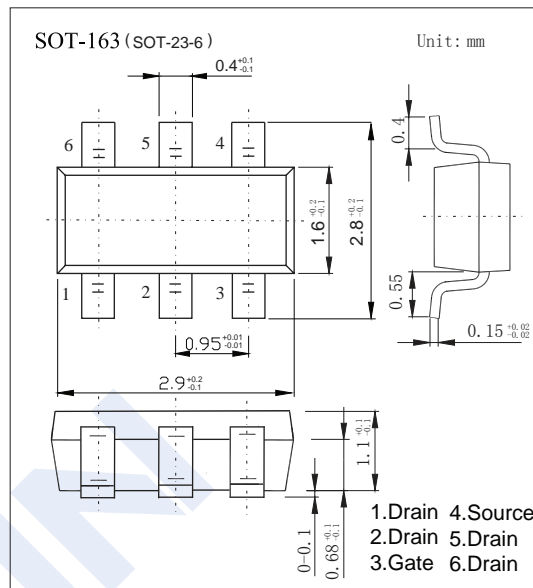
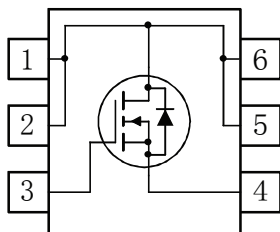


## N-Channel MOSFET

## 2KK5036

## ■ Features

- $BV_{DS} = 30\text{ V}$
- $I_D = 8.3\text{ A}$
- $R_{DS(ON)} \leq 17.5\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- $R_{DS(ON)} \leq 22\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$
- $Q_g = 11\text{ nC (typ.)}$

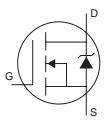
■ Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 12$		
Continuous Drain Current	$I_D$	$T_A = 25^\circ\text{C}$	8.3	A
		$T_A = 70^\circ\text{C}$		
Pulsed Drain Current <sup>*1</sup>	$I_{DM}$	64		
Power Dissipation <sup>*3</sup>	$P_D$	$T_A = 25^\circ\text{C}$	2	W
		$T_A = 70^\circ\text{C}$	1.3	
Thermal Resistance, Junction- to-Ambient <sup>*3</sup>	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$	
Junction Temperature	$T_J$	150	$^\circ\text{C}$	
Storage Temperature Range	$T_{stg}$	-55 to 150		

## N-Channel MOSFET

## 2KK5036

■ Electrical Characteristics (T<sub>J</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> = 250 μA, V <sub>GS</sub> = 0V	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 125°C			150	
Gate to Source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±12 V			±100	nA
Gate to Source Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 10μA	1.0		2.0	V
Static Drain-Source On-Resistance *2	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 8.3 A			17.5	mΩ
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 6.7 A			22	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 6.4 A	25			S
Gate Resistance	R <sub>G</sub>			2.2		Ω
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 25 V, f = 1 MHz		1010		pF
Output Capacitance	C <sub>oss</sub>			96		
Reverse Transfer Capacitance	C <sub>rss</sub>			70		
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15 V, I <sub>D</sub> = 6.4 A		11		nC
Gate Source Charge	Q <sub>gs</sub>			0.5		
Gate Drain Charge	Q <sub>gd</sub>			4.6		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15 V, I <sub>D</sub> = 6.4A, R <sub>G</sub> = 6.8Ω *3		5.4		ns
Turn-On Rise Time	t <sub>r</sub>			11		
Turn-Off Delay Time	t <sub>d(off)</sub>			32		
Turn-Off Fall Time	t <sub>f</sub>			15		
Diode Forward Current	I <sub>S</sub>	MOSFET symbol showing the integral reverse p-n junction diode. 			2	A
Diode Pulsed Source Current *1	I <sub>SM</sub>				64	
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0 V, I <sub>S</sub> = 8.3 A			1.2	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 6.4A, V <sub>DD</sub> = 24V, di/dt = 100/μs			20	ns
Reverse Recovery Charge	Q <sub>rr</sub>				8.7	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width ≤ 400μs, Duty Cycle ≤ 2%.
3. When mounted on 1 inch square copper board.
4. R<sub>θ</sub> is measured at T<sub>J</sub> of approximately 90°C.

## ■ Marking

Marking	5036
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# N-Channel MOSFET

## 2KK5036

■ Typical Characteristics

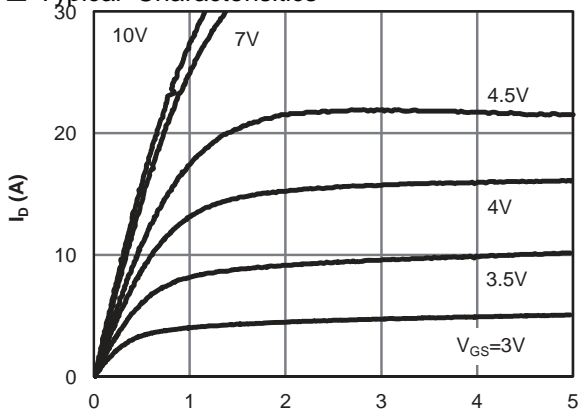


Figure 1: On-Region Characteristics

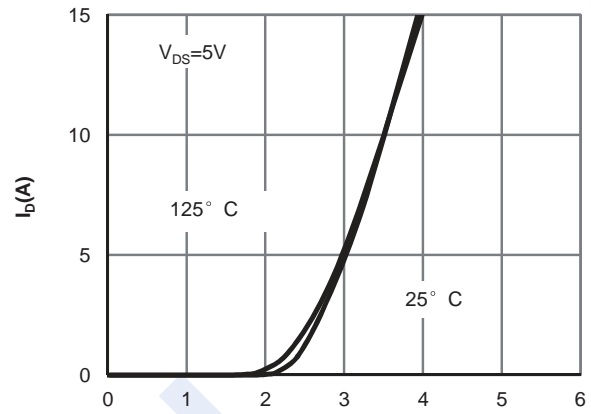


Figure 2: Transfer Characteristics

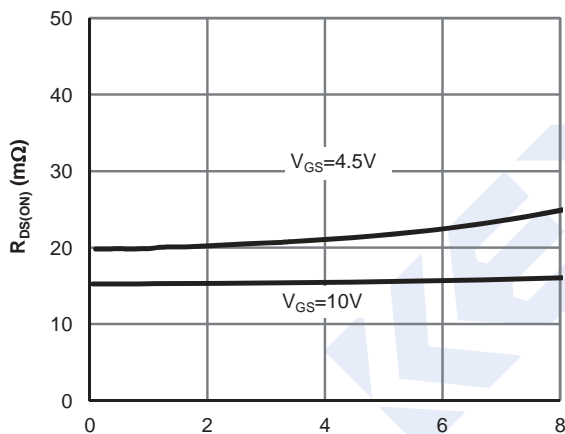


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

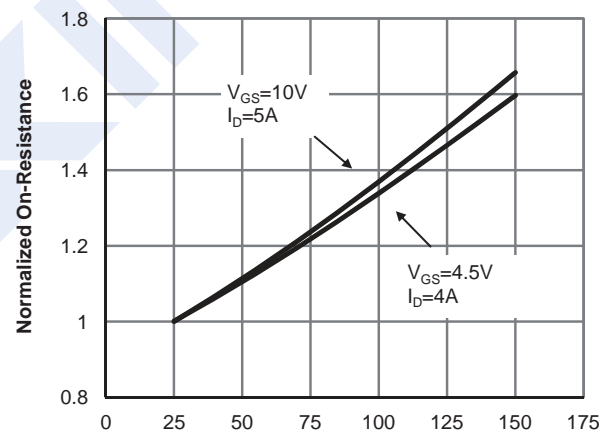


Figure 4: On-Resistance vs. Junction Temperature

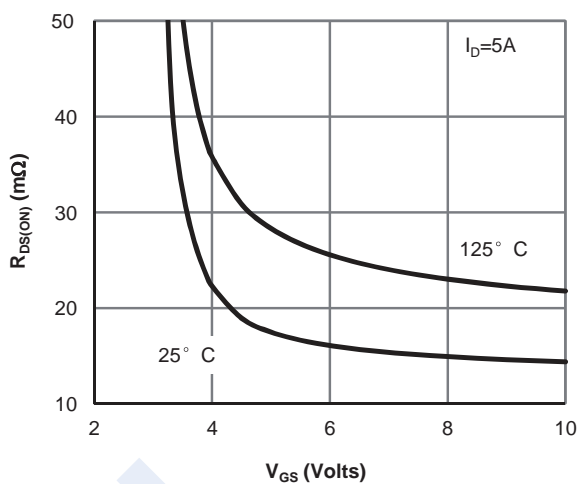


Figure 5: On-Resistance vs. Gate-Source Voltage

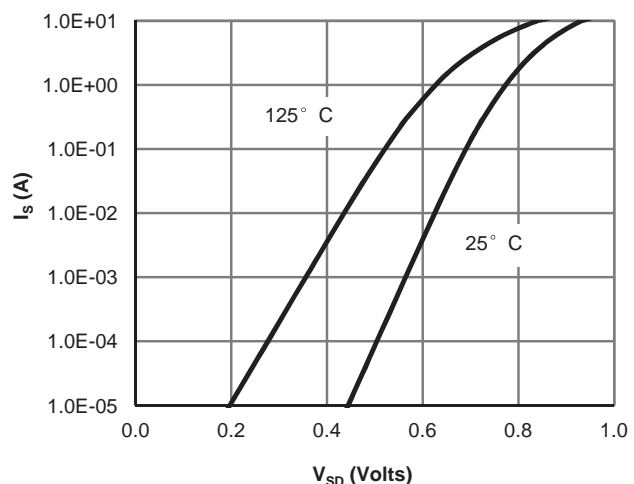


Figure 6: Body-Diode Characteristics

# N-Channel MOSFET

## 2KK5036

■ Typical Characteristics

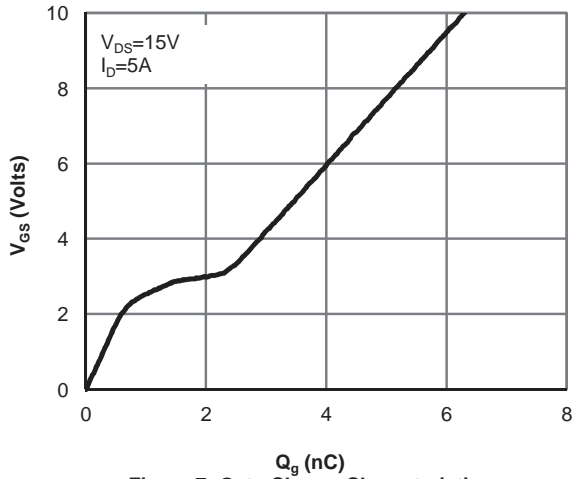


Figure 7: Gate-Charge Characteristics

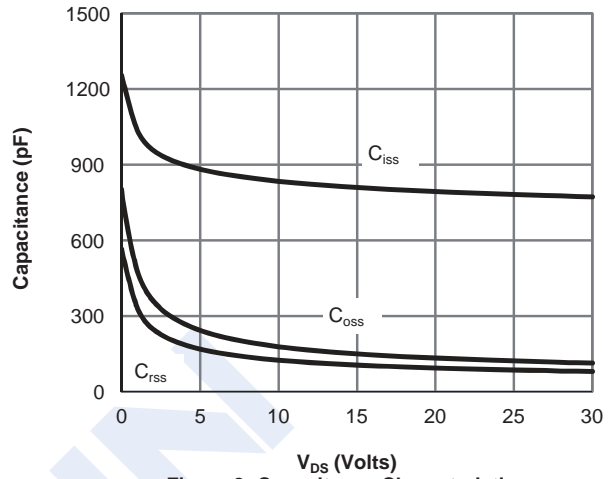


Figure 8: Capacitance Characteristics

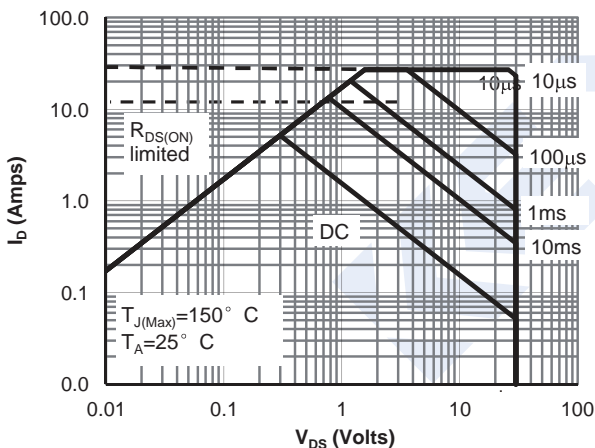


Figure 9: Maximum Forward Biased Safe Operating Area

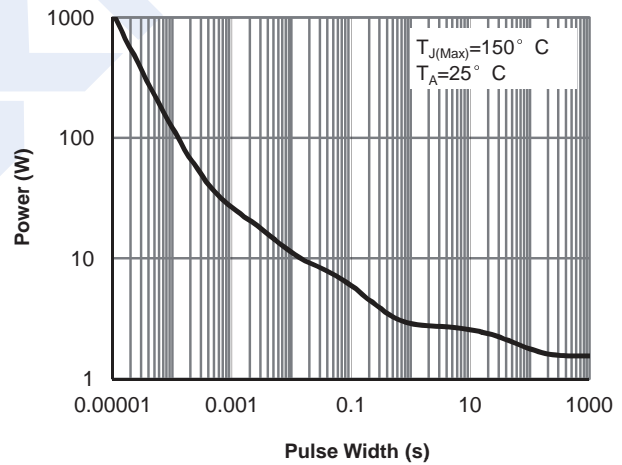


Figure 10: Single Pulse Power Rating Junction-to-Ambient

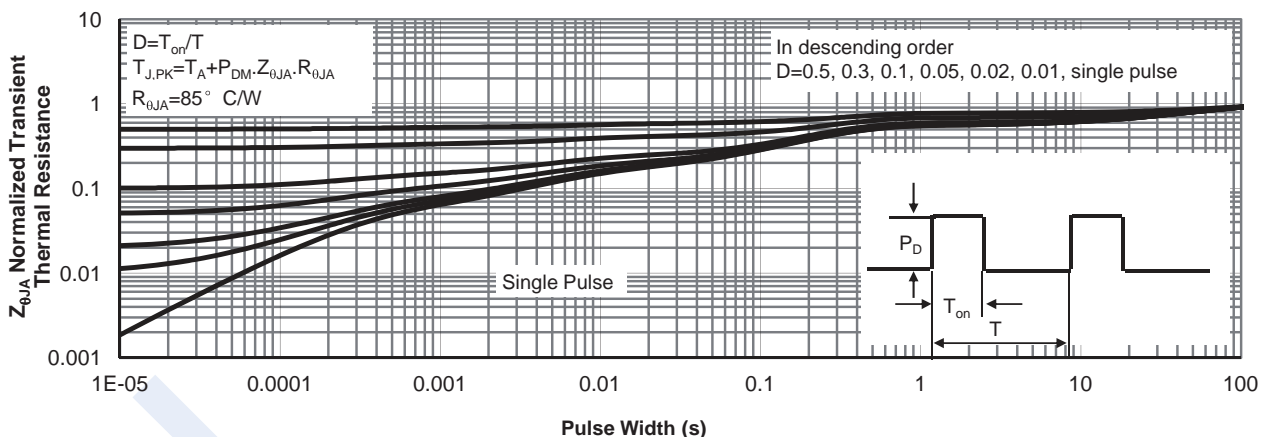


Figure 11: Normalized Maximum Transient Thermal Impedance