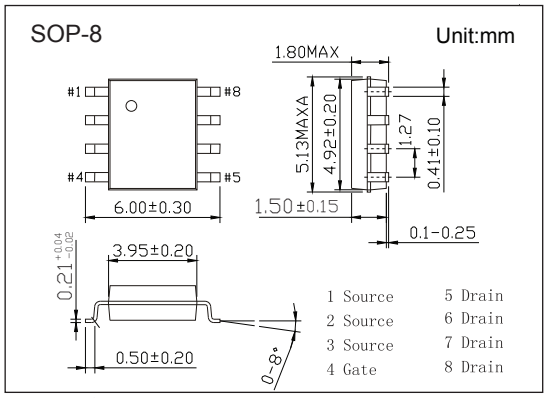
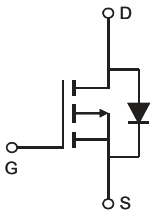
P-channel MOSFET

2KJ7005



■ Features

- V_{DS} = -30V
- I_D = -25 A
- $R_{DS(on)} \leqslant 9m\Omega$ (V_{GS}=-10V)



■ Absolute Maximum Ratings (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current	I_D	-25	A
Pulsed Drain Current (Note 1)	I_{DM}	-70	
Maximum Power Dissipation	P_D	3.5	W
Thermal Resistance, Junction- to-Ambient	R^{θ}_{JA}	36	℃/W
Junction Temperature	T_J	150	℃
Junction Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ⩽ 10 sec.

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■ Electrical Characteristics (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
On Characteristics (Note1)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=-250μA	-1.0		-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-15A			9	mΩ
		V_{GS}=-4.5V, I_D=-10A			14	
Forward Transconductance	g_{FS}	V_{DS}=-10V, I_D=-15A	30			S
Dynamic Characteristics (Note2)						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		3960		pF
Output Capacitance	C_{oss}			486		
Reverse Transfer Capacitance	C_{rss}			268		
Switching Characteristics (Note2)						
Turn-On DelayTime	$t_{d(on)}$	V_{DS}=-15V, I_D=-10A, V_{GS} = –10 V, R_{GEN} = 3 Ω		20		ns
Turn-On Rise Time	t_r			13		
Turn-Off DelayTime	$t_{d(off)}$			55		
Turn-Off Fall Time	t_f			21		
Total Gate Charge	Q_g	V_{DS}=-15V, I_D=-10A, V_{GS} = –10V		65		nC
Gate Source Charge	Q_{gs}			12		
Gate Drain Charge	Q_{gd}			14		
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 1)	V_{SD}	I_{SD}=-25 A,V_{GS}=0V			-1.2	V

Notes:

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
2. Guaranteed by design, not subject to production

■ Marking

Marking	J7005 KC****

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■ Typical Electrical and Thermal Characteristics

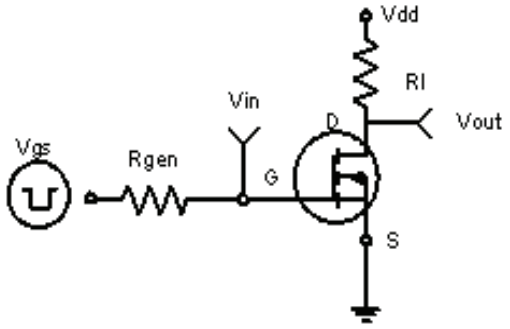


Figure 1 Switching Test Circuit

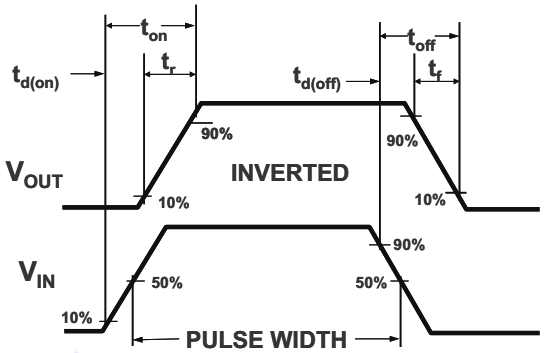
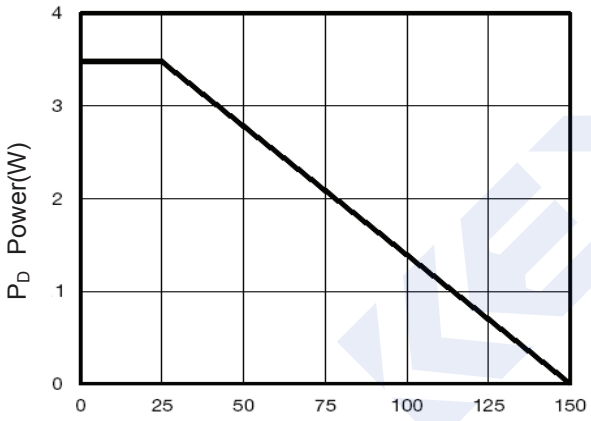
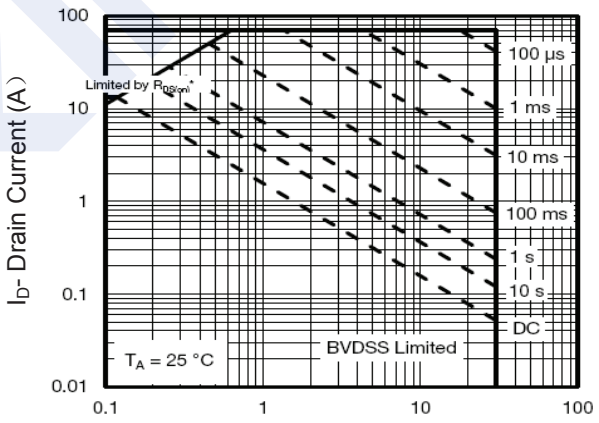


Figure 2 Switching Waveforms



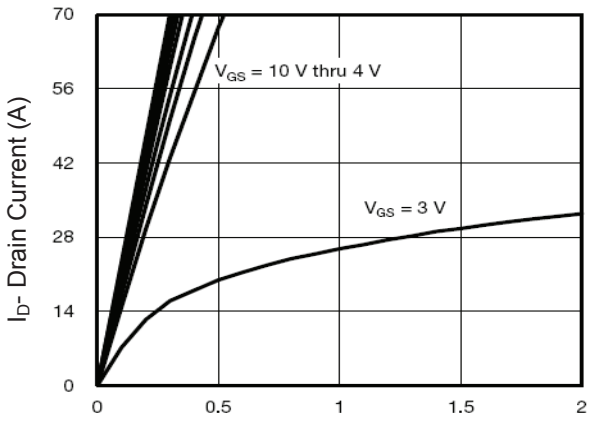
T_J-Junction Temperature(℃)

Figure 3 Power Dissipation



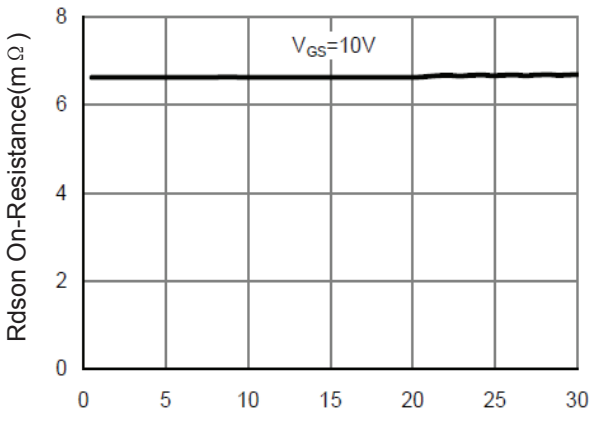
Vds Drain-Source Voltage (V)

Figure 4 Safe Operation Area



Vds Drain-Source Voltage (V)

Figure 5 Output Characteristics



I_D- Drain Current (A)

Figure 6 Drain-Source On-Resistance

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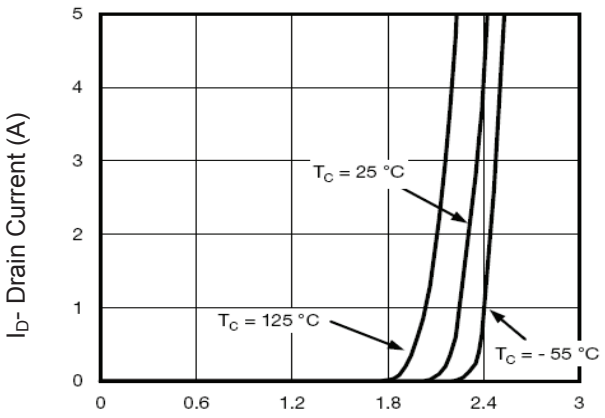

Figure 7 Transfer Characteristics

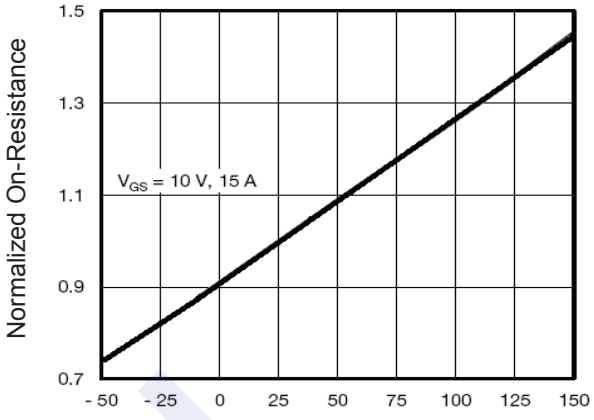

Figure 8 Drain-Source On-Resistance

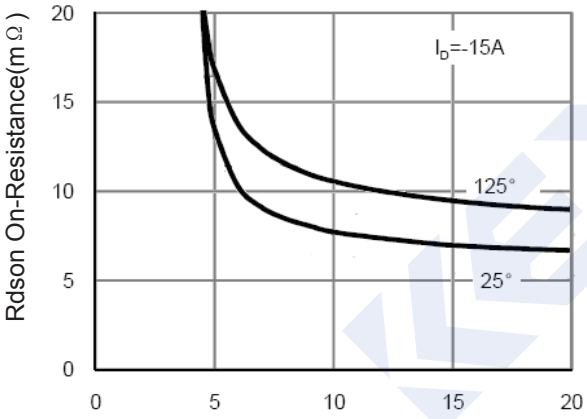

Figure 9 Rdson vs Vgs

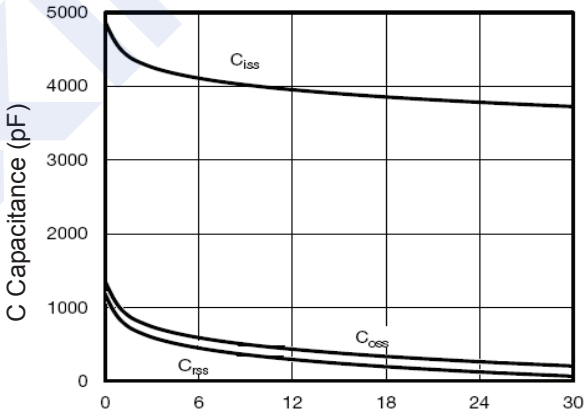

Figure 10 Capacitance vs Vds

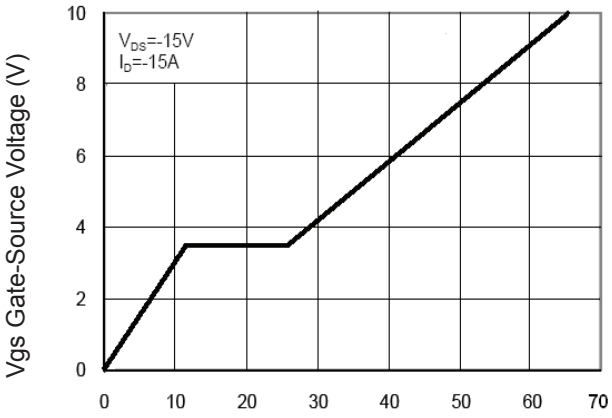

Figure 11 Gate Charge

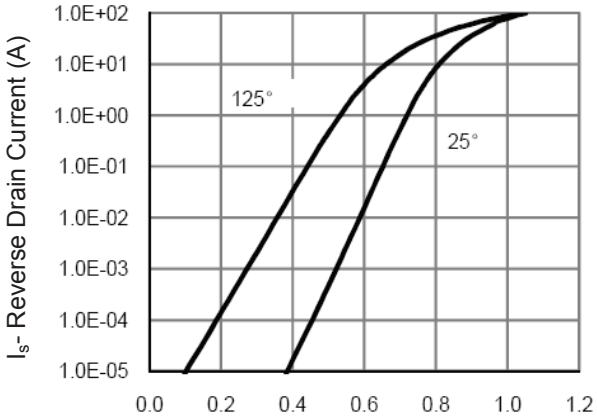

Figure 12 Source- Drain Diode Forward

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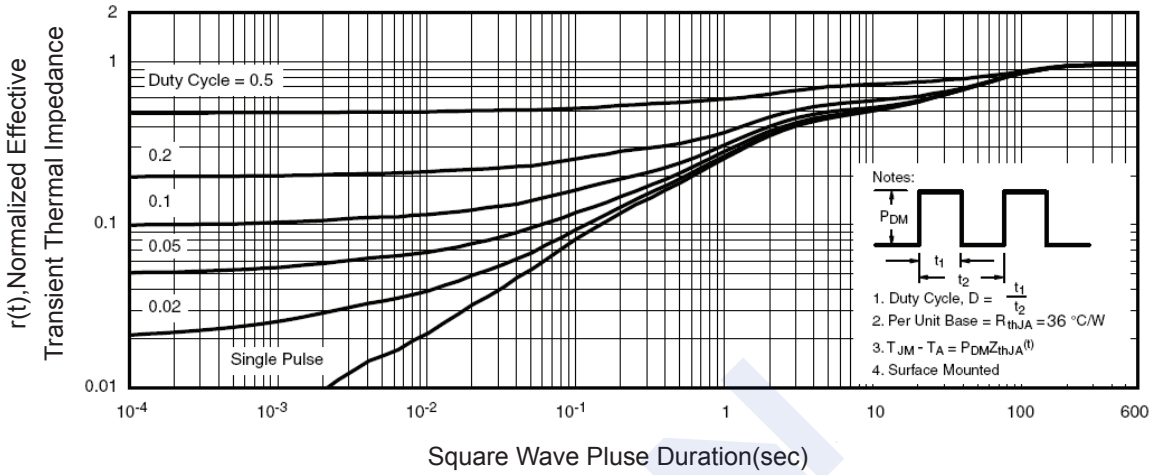

Figure 13 Normalized Maximum Transient Thermal Impedance