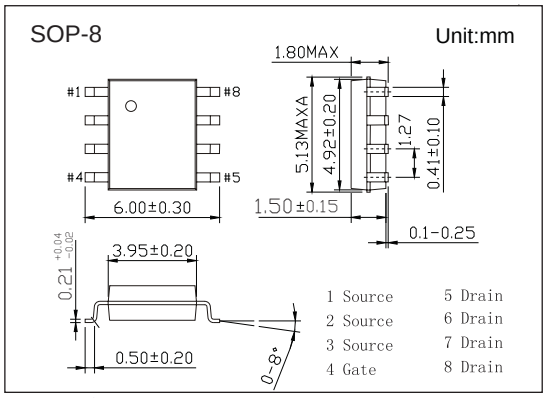
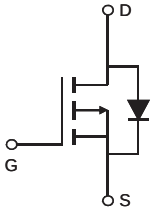
P-channel MOSFET

2KJ7008

■ Features

- V_{DS} = -40V
- I_D = -13 A
- $R_{DS(on)}$ < 15mΩ @ V_{GS}=-10V
- $R_{DS(on)}$ < 18mΩ @ V_{GS}=-4.5V
- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation





■ Absolute Maximum Ratings (T_A = 25℃ 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	-13	A
Pulsed Drain Current (Note 1)	I_{DM}	-50	
Maximum Power Dissipation	P_D	2.5	W
Thermal Resistance, Junction- to-Ambient (Note 2)	$R_{\theta JA}$	50	℃/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	-40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-40V, V_{GS}=0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=-250μA	-1.3	-2	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-12A		12	15	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-15V, I_D=-10A	35			S
Dynamic Characteristics (Note 4)						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-20V, f=1MHz		2800		pF
Output Capacitance	C_{oss}			320		
Reverse Transfer Capacitance	C_{rss}			220		
Switching Characteristics (Note 4)						
Turn-On DelayTime	$t_{d(on)}$	V_{DS}=-20V, R_L = 2 Ω V_{GS} = –10 V, R_{GEN} = 6 Ω		11		ns
Turn-On Rise Time	t_r			75		
Turn-Off DelayTime	$t_{d(off)}$			89		
Turn-Off Fall Time	t_f			35		
Total Gate Charge	Q_g	V_{DS}=-20V, I_D=-12A, V_{GS} = –10V		40		nC
Gate Source Charge	Q_{gs}			6		
Gate Drain Charge	Q_{gd}			12		
Drain-Source Diode Characteristics (Note 3)						
Diode Forward Voltage	V_{SD}	I_{SD}=-12 A,V_{GS}=0V			-1.2	V
Diode Forward Current	I_S				-13	A

Notes:

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

■ Marking

Marking	J7008 KC****

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■ Typical Electrical and Thermal Characteristics

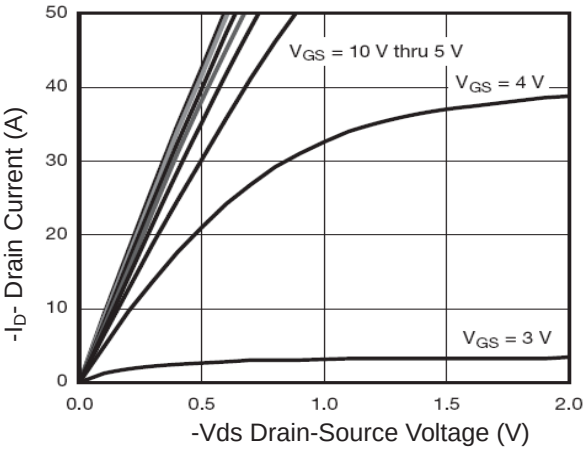

Figure 1 Output Characteristics

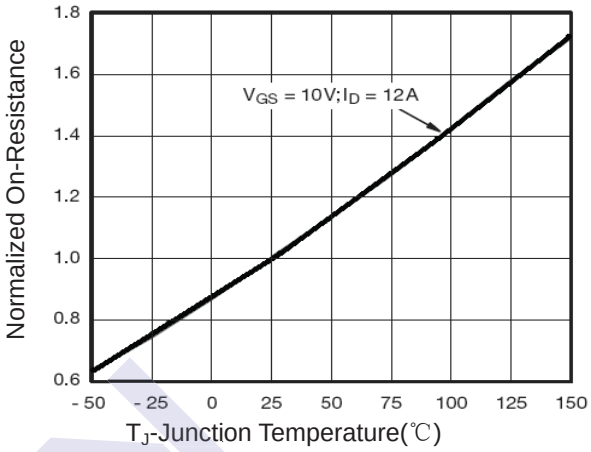

Figure 4 Rdson-Junction Temperature

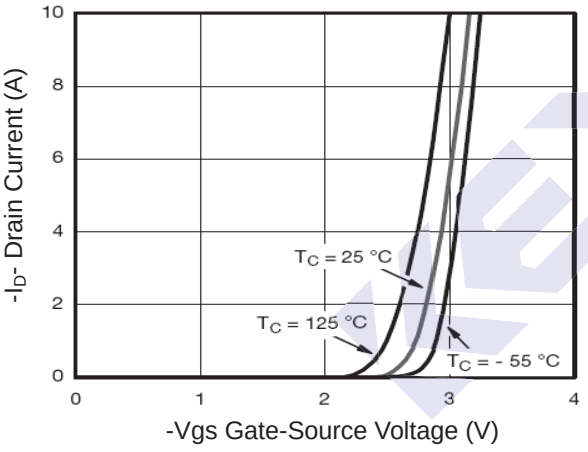

Figure 2 Transfer Characteristics

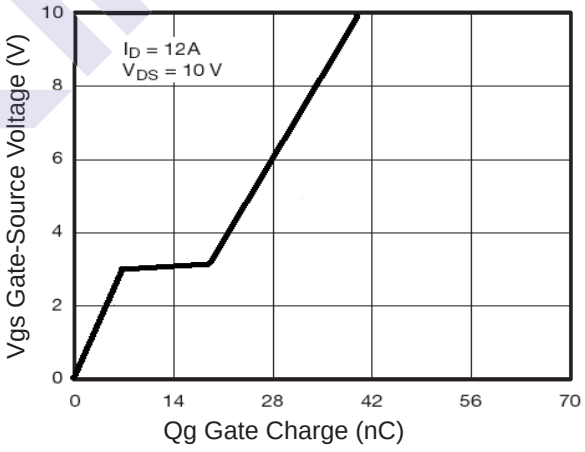

Figure 5 Gate Charge

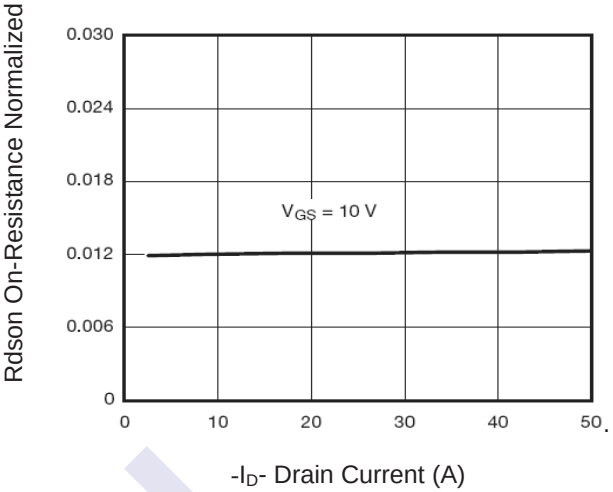

Figure 3 Rdson- Drain Current

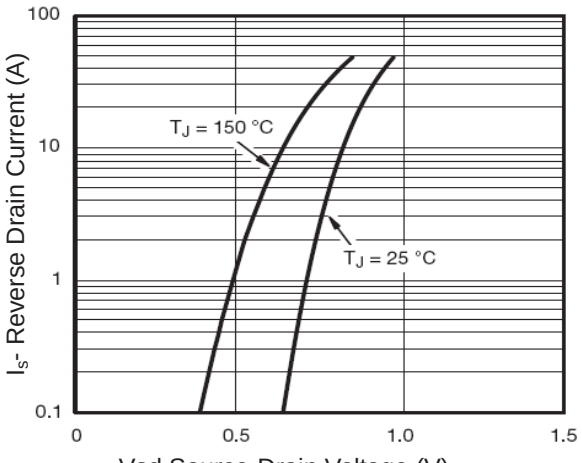

Figure 6 Source- Drain Diode Forward

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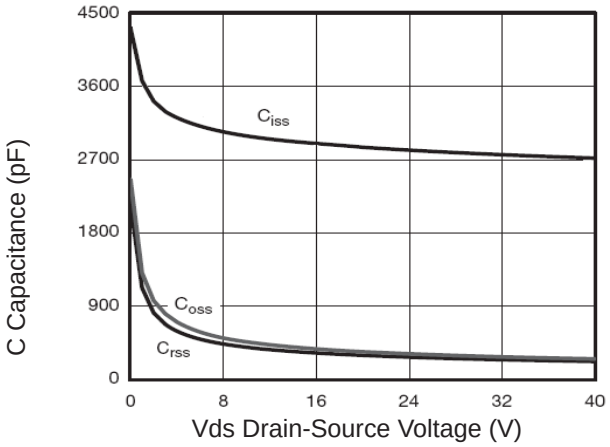

Figure 7 Capacitance vs Vds

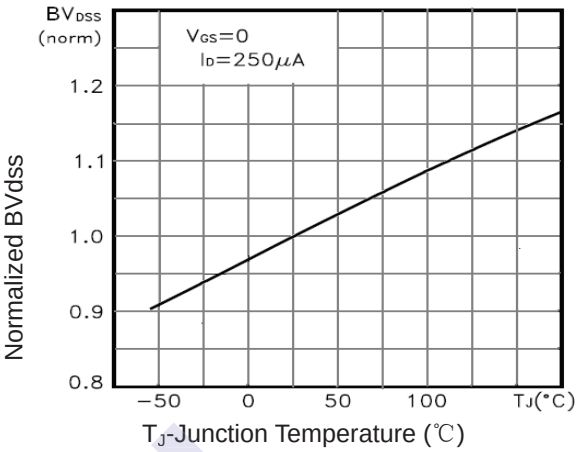

Figure 9 BV_{DSS} vs Junction Temperature

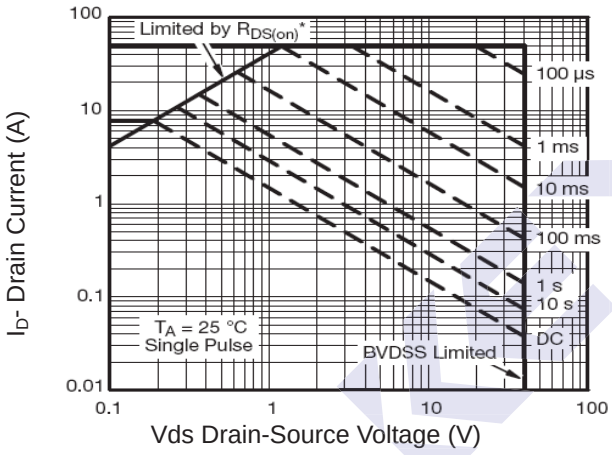

Figure 8 Safe Operation Area

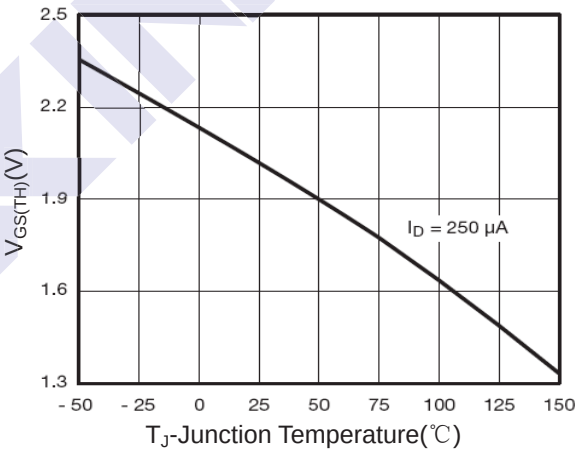

Figure 10 $V_{GS(th)}$ vs Junction Temperature

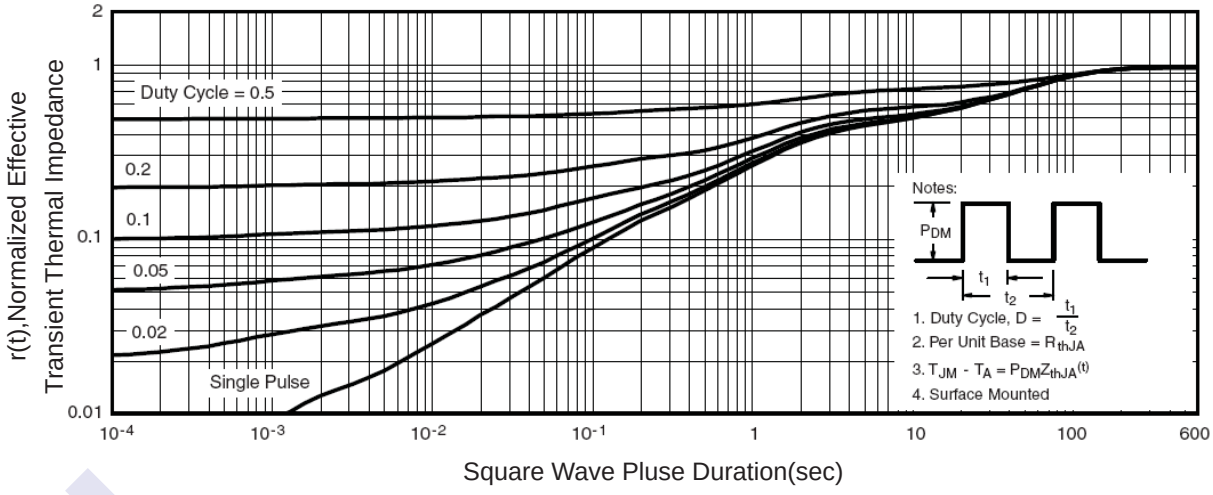

Figure 11 Normalized Maximum Transient Thermal Impedance