

RoHS  
Compliant



## Features

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

## Absolute Maximum Ratings (TA = 25°C unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-40	V
Gate-Source Voltage	$V_{GS}$	+20	
Continuous Drain Current	$I_D$	-13	A
Pulsed Drain Current	$I_{DM}$	-50	
Maximum Power Dissipation	$P_D$	2.5	W
Thermal Resistance, Junction- to-Ambient (Note 2)	$R_{\theta JA}$	50	°C/W
Junction Temperature	$T_J$	150	°C
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,  $t \leq 10$  sec.

## Electrical Characteristics (TA = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{DSS}$	$I_D = -250\mu A, V_{GS} = 0V$	-40			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -48V, V_{GS} = 0V$			-1	$\mu A$
Gate-Body leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
<b>On Characteristics (Note 3)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.3	-2	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -12A$		12	15	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS} = -15V, I_D = -10A$	35			S
<b>Dynamic Characteristics (Note 4)</b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -30V, f = 1MHz$		2800		pF
Output Capacitance	$C_{oss}$			320		
Reverse Transfer Capacitance	$C_{rss}$			220		

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Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Switching Characteristics (Note 4)						
Turn-On DelayTime	$t_{d(on)}$	$V_{DS}=-20V, R_L = 2\Omega$ $V_{GS}=-10V, R_{GEN}=6\Omega$		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	$Q_g$	$V_{DS}=-20V, I_D=-12A, V_{GS}=-10A$		40		nC
Gate Source Charge	$Q_{gs}$			6		
Gate Drain Charge	$Q_{gd}$			12		
Drain-Source Diode Characteristics Note 3)						
Diode Forward Voltage	$V_{SD}$	$I_{SD}=-12A, V_{GS}=0V$			-1.2	V
Diode Forward Current	$I_S$				-13	A

Notes:

1. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
2. Guaranteed by design, not subject to production

## Typical Characteristics

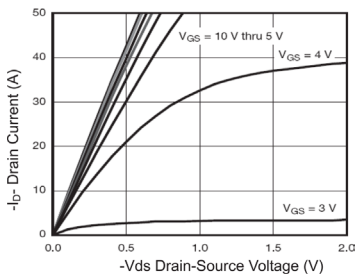


Figure 1 Output Characteristics

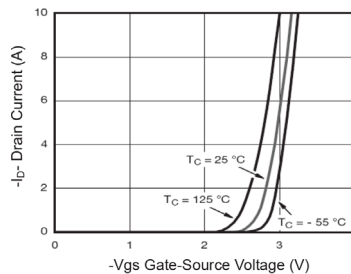


Figure 2 Transfer Characteristics

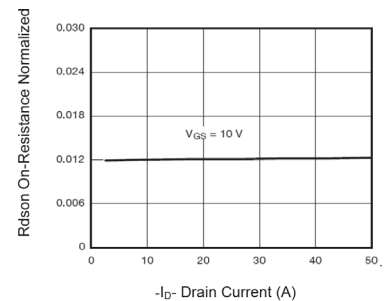


Figure 3 Rdson- Drain Current

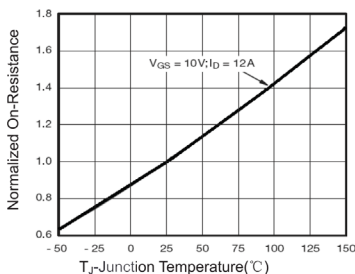


Figure 4 Rdson-Junction Temperature

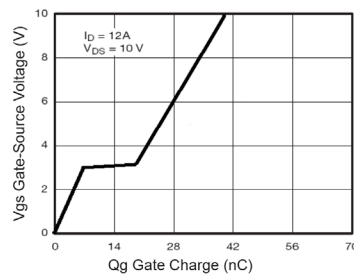


Figure 5 Gate Charge

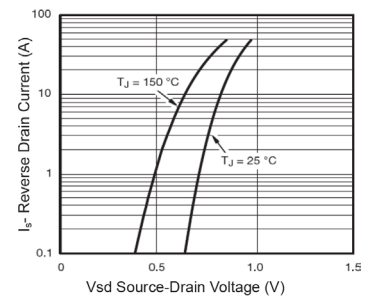
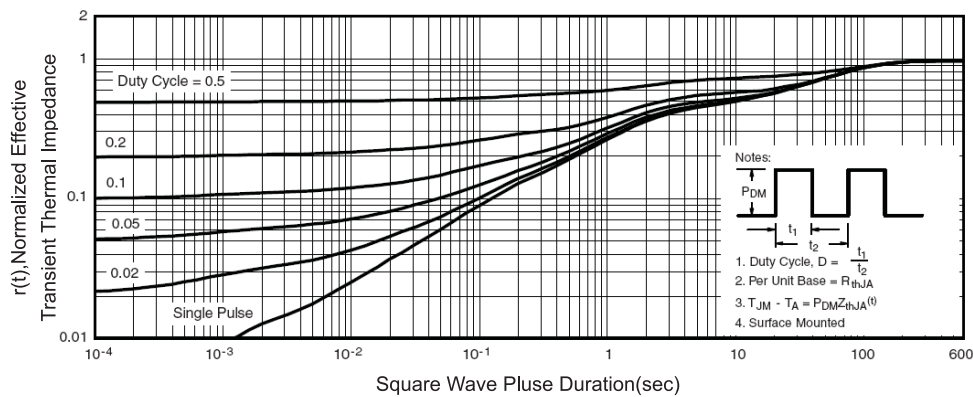
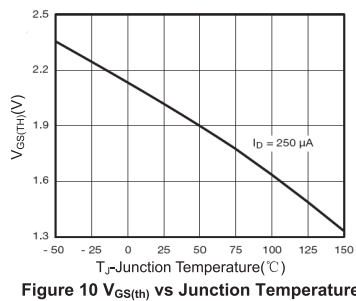
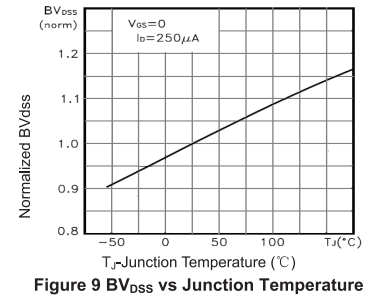
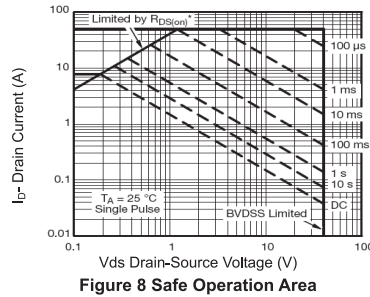
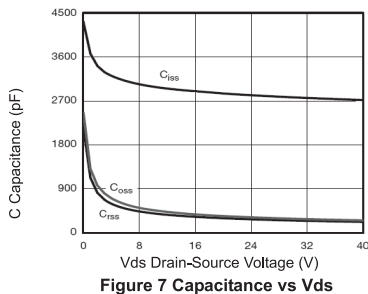
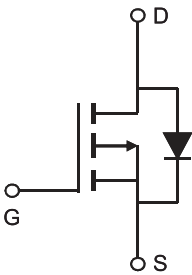
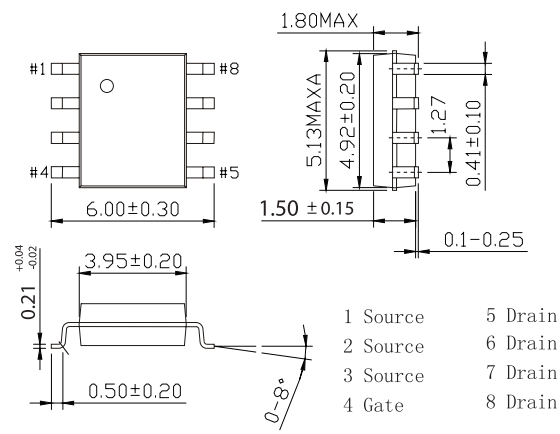


Figure 6 Source- Drain Diode Forward

## Typical Characteristics



Diagram



Part Number Table

Description	Part Number
P Channel MOSFET, 13A, 40V, SOP8	2KJ7008

Dimensions : Millimetres

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