P Channel MOSFET

multicomp PRO

RoHS Compliant

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 (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 ≤ 10 sec.

Electrical Characteristics (T_A = 25°C 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}=-48V, 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}=-30V, f=1MHz		2800		pF
Output Capacitance	C_{oss}			320		
Reverse Transfer Capacitance	C_{RSS}			220		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Switching Characteristics (Note 4)						
Turn-On DelayTime	$t_{d(on)}$	V_{DS}=-20V, R_L = 2Ω V_{GS}=-10V, R_{GEN}=6Ω		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 ≤ 300μs, Duty Cycle ≤ 2%.
2. Guaranteed by design, not subject to production

Typical Characterisitics

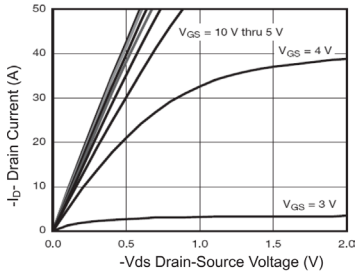


Figure 1 Output Characteristics

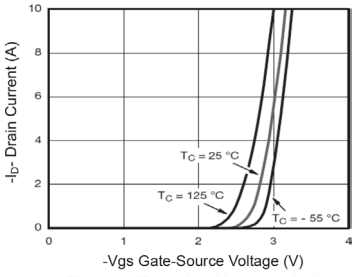


Figure 2 Transfer Characteristics

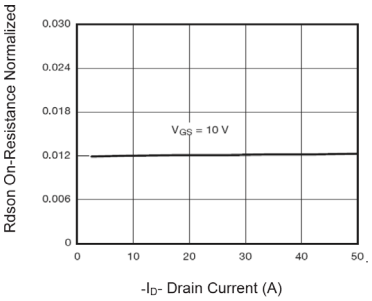


Figure 3 Rdson- Drain Current

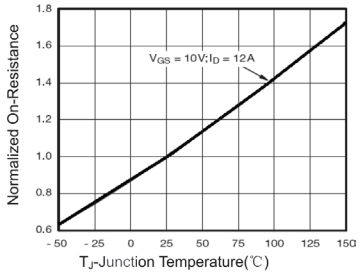


Figure 4 Rdson-Junction Temperature

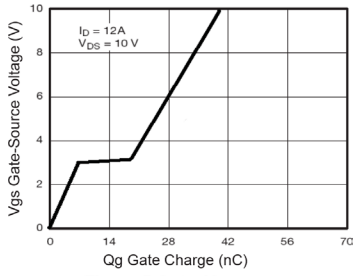


Figure 5 Gate Charge

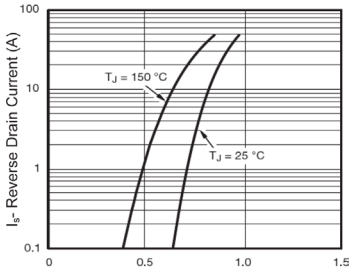


Figure 6 Source- Drain Diode Forward

Typical Characterisitics

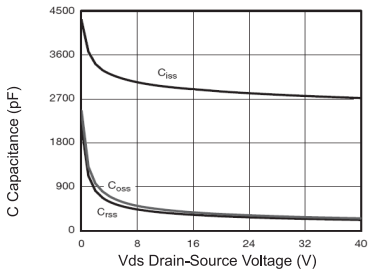


Figure 7 Capacitance vs Vds

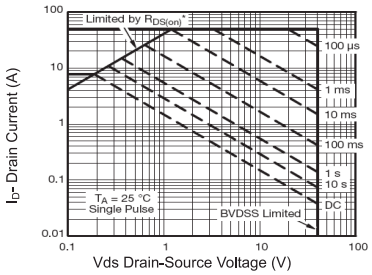


Figure 8 Safe Operation Area

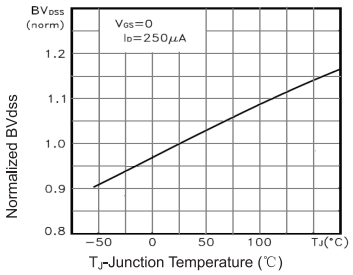


Figure 9 BV_{DSS} vs Junction Temperature

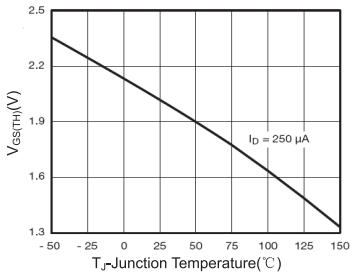


Figure 10 $V_{GS(th)}$ vs Junction Temperature

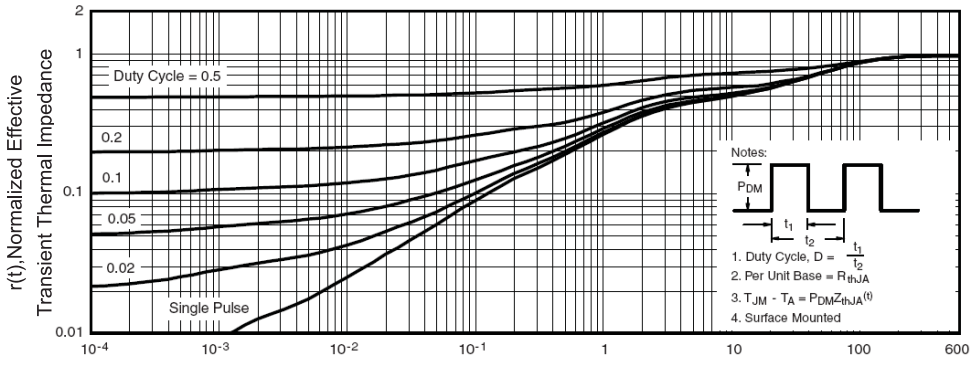
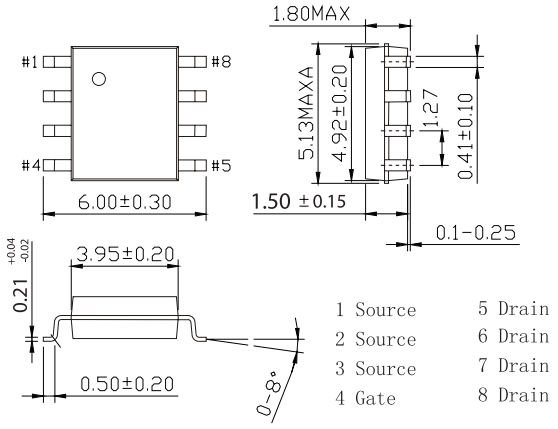
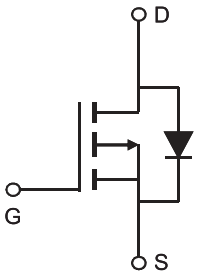


Figure 11 Normalized Maximum Transient Thermal Impedance

P Channel MOSFET

Diagram





Part Number Table

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

Dimensions : Millimetres