

RoHS
Compliant



Features

- $R_{DS(ON)} < 100m\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 120m\Omega$ ($V_{GS} = 4.5V$)

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	+20	
Drain Current Continuous	I_D	4	A
Pulsed Drain Current	I_{DM}	25	
Power Dissipation @TA=25°C	P_D	3	W
Thermal Resistance. Junction- to-Ambient	$R_{\theta JA}$	42	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-65 to 150	°C

Electrical Characteristics (TA = 25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$			1	μA
Gate-Body leakage	I_{GSS}	$V_{GS}=20V, V_{DS}=\pm 0V$			± 100	nA
Gate Threshold Voltage (NOTE 2)	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	1	1.6	2	V
Drain-Source On-State Resistance (NOTE 2)	$R_{DS(on)}$	$V_{GS}=10V, I_D=-4A$			100	m Ω
		$V_{GS}=4.5V, I_D=-3.7A$			120	
On State Drain Current (NOTE 2)	$I_{D(on)}$	$V_{DS}=10V, V_{GS}=5V$	10			A
Forward Transconductance (NOTE 2)	g_{FS}	$V_{DS}=5V, I_D=4A$		7		S

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		345		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			30		
Turn-On DelayTime	$t_{d(on)}$	$V_{DD}=25V, I_D=1A, V_{GS}=10V, R_{GEN}=6\Omega$			20	nS
Rise Time	t_r				20	
Turn-Off DelayTime	$t_{d(off)}$				50	
Fall Time	t_f				20	
Total Gate Charge	Q_g	$V_{DS}=40V, I_D=4V, V_{GS}=10V$		13	20	nC
Gate Source Charge	Q_{gs}			1.7		
Gate Drain Charge	Q_{gd}			3.2		
Drain-Source Diode Forward Current (NOTE 2)	I_S				2.5	A
Diode Forward Current	V_{SD}	$V_{GS}=0V, I_S=2.5A$		0.8	1.2	V

Note: 1. Surface Mounted on FR4 Board $t \leq 10Sec$.
2. Pulse Test: Pulse Width $\leq 300\mu$, Duty Cycle $\leq 2\%$

Typical Characteristics

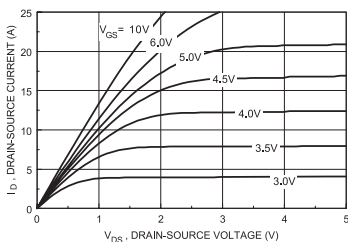


Figure 1. On-Region Characteristics.

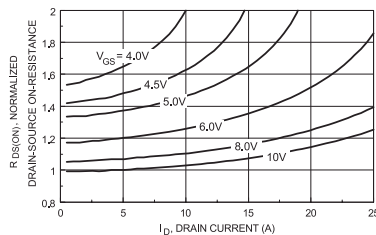


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

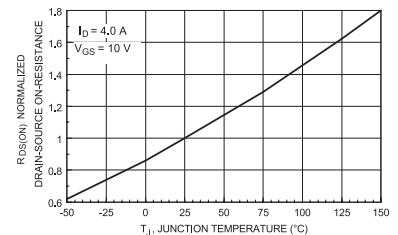


Figure 3. On-Resistance Variation with Temperature.

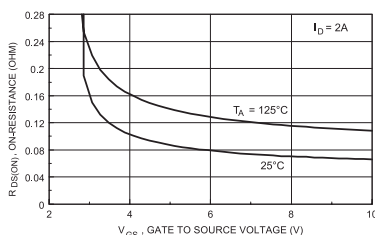


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

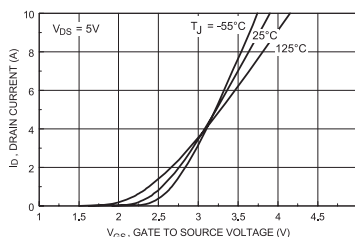


Figure 5. Transfer Characteristics.

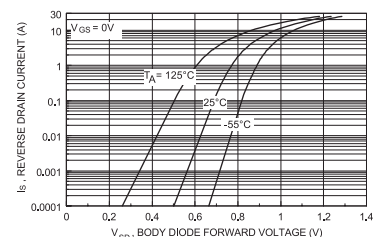


Figure 6. Body Diode Forward Voltage Variation with Current and Temperature.

Typical Characteristics

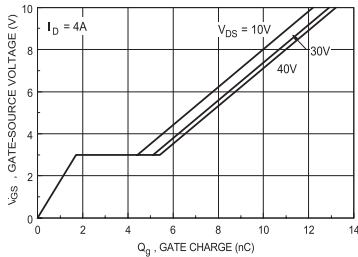


Figure 7. Gate Charge Characteristics.

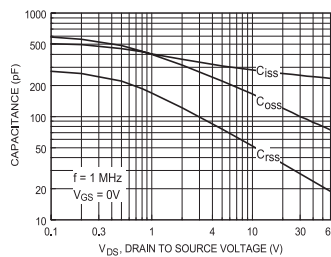


Figure 8. Capacitance Characteristics.

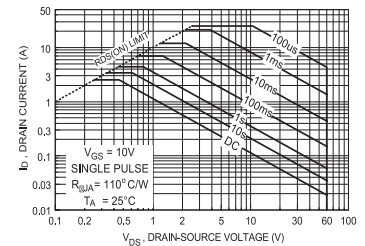


Figure 9. Maximum Safe Operating Area.

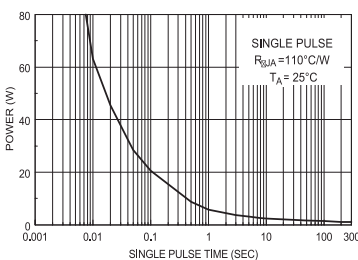


Figure 10. Single Pulse Maximum Power Dissipation.

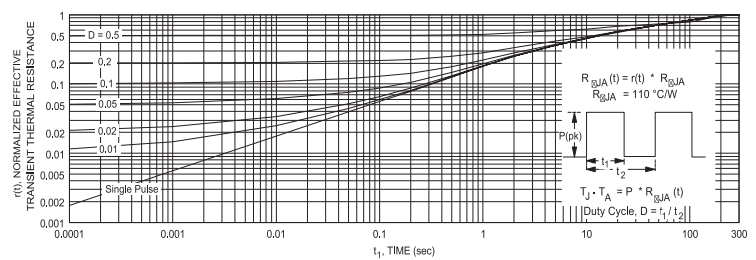
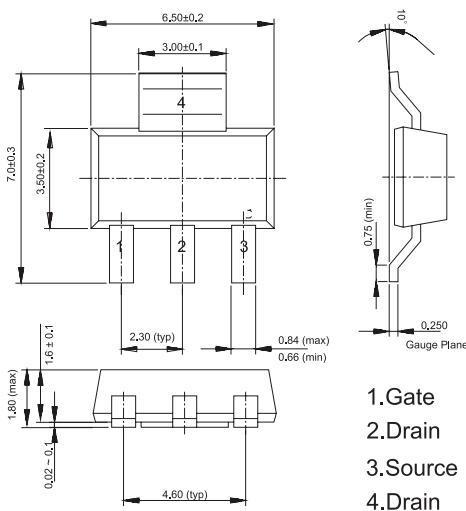


Figure 11. Transient Thermal Response Curve.

Thermal characterization performed using the conditions described in note 1c.
Transient thermal response will change depending on the circuit board design.

Diagram



Dimensions : Millimetres

Part Number Table

Description	Part Number
N Channel MOSFET, 3.7A, 60V, SOT23-3	2KK5030

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