N-Channel Power MOSFET
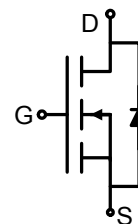
General Features
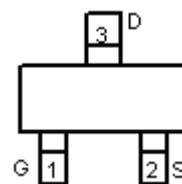
● V_{DS} =60V, I_D =3A

   $R_{DS(ON)}$ <105mΩ @ V_{GS}=10V

   $R_{DS(ON)}$ < 125mΩ @ V_{GS}=4.5V

● High power and current handing capability

● Lead free product is acquired

● Surface mount package

Application
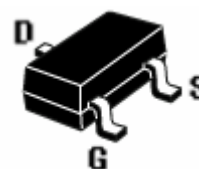
●Battery switch

●DC/DC converter

Schematic Diagram

Pin Assignment

SOT-23 top view

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	3	A
Drain Current-Pulsed [Note 1]	I_{DM}	10	A
Maximum Power Dissipation	P_D	1.7	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	℃

Thermal Characteristic

Thermal Resistance,Junction-to-Ambient [Note 2]	$R_{θJA}$	73.5	℃/W

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250µA	60	65	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	-	-	1	µA

Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm20V, V_{DS}=0V$	-	-	±100	nA
On Characteristics [Note 3]						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.3	2.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V$, $I_D=3A$	-	78	105	mΩ
		$V_{GS}=4.5V$, $I_D=3A$	-	95	125	mΩ
Forward Transconductance	g_{FS}	$V_{DS}=15V, I_D=2A$		3	-	S
Dynamic Characteristics [Note4]						
Input Capacitance	C_{Iss}	$V_{DS}=30V, V_{GS}=0V$, F=1.0MHz	-	247	-	PF
Output Capacitance	C_{oss}		-	34	-	PF
Reverse Transfer Capacitance	C_{rss}		-	19.5	-	PF
Switching Characteristics [Note 4]						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=1.5A$ $V_{GS}=10V, R_{GEN}=1\Omega$	-	6	-	nS
Turn-on Rise Time	t_r		-	15	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	15	-	nS
Turn-Off Fall Time	t_f		-	10	-	nS
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=3A$, $V_{GS}=4.5V$	-	6	-	nC
Gate-Source Charge	Q_{gs}		-	1	-	nC
Gate-Drain Charge	Q_{gd}		-	1.3	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage [Note 3]	V_{SD}	$V_{GS}=0V, I_S=3A$	-	-	1.2	V
Diode Forward Current [Note 2]	I_S		-	-	3	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, t ≤ 10 sec.

3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

4. Guaranteed by design, not subject to production
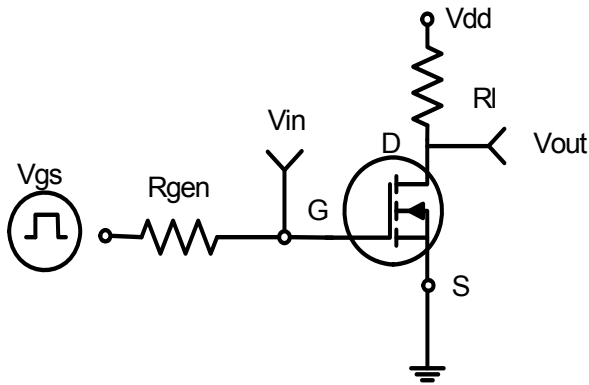
Typical Electrical and Thermal Characteristics
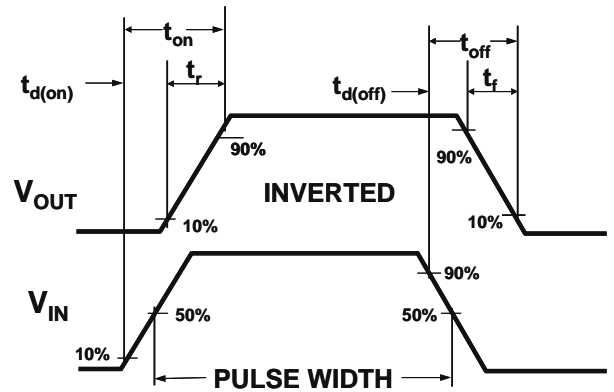

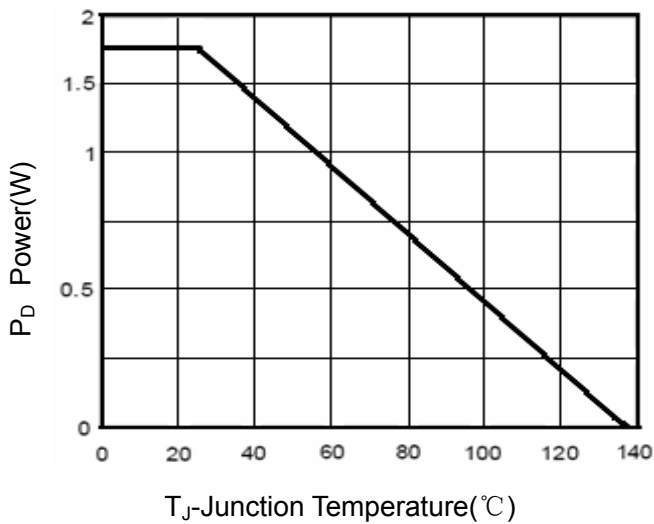**Figure 1:Switching Test Circuit**

Figure 2:Switching Waveforms

T_J-Junction Temperature($°C$)

Figure 3 Power Dissipation

T_J-Junction Temperature($°C$)

Figure 4 Drain Current

Vds Drain-Source Voltage (V)
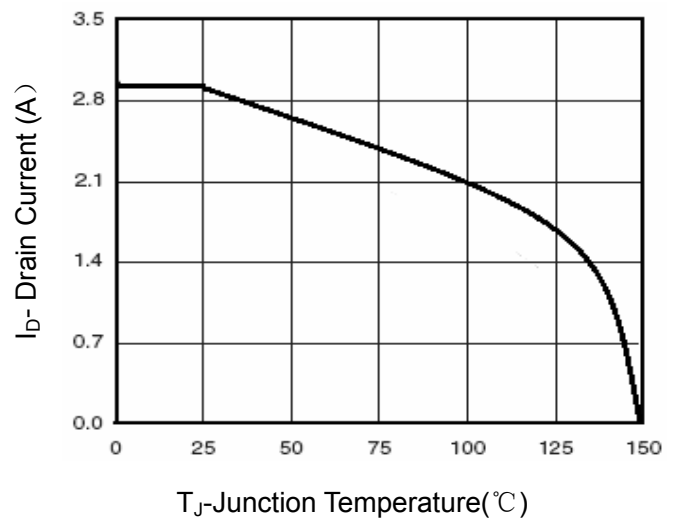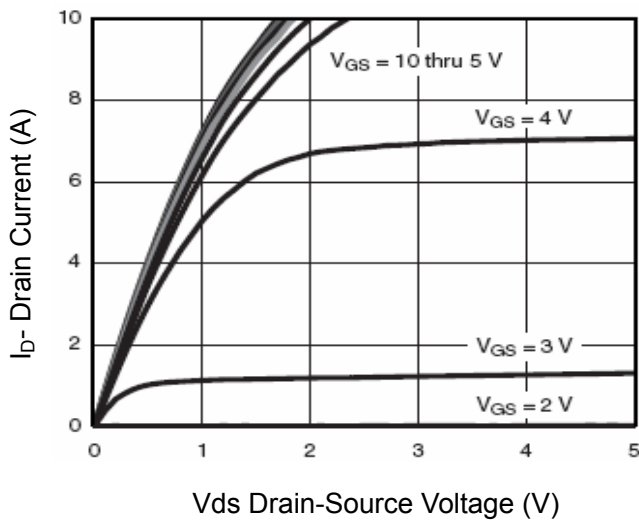
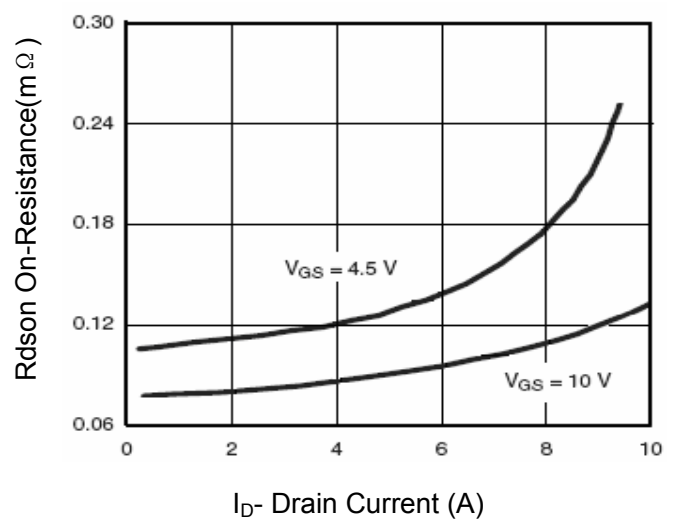**Figure 5 Output Characteristics**

I_D- Drain Current (A)

Figure 6 Drain-Source On-Resistance
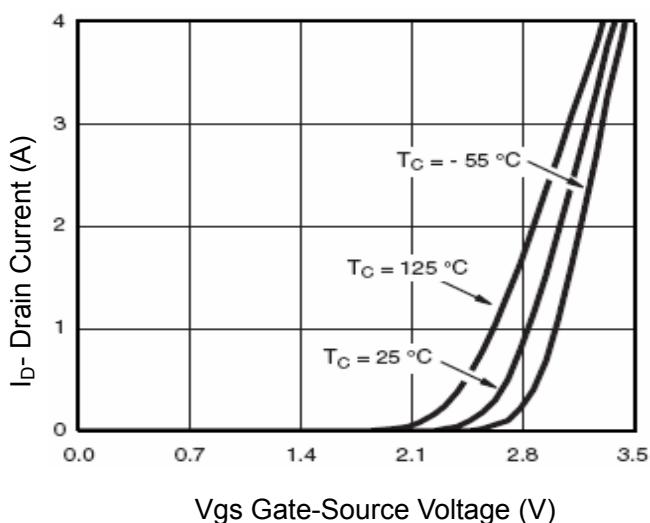
Figure 7 Transfer Characteristics
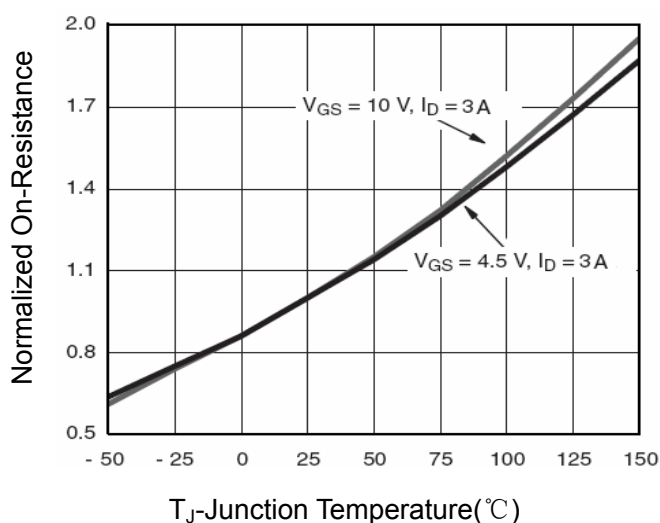
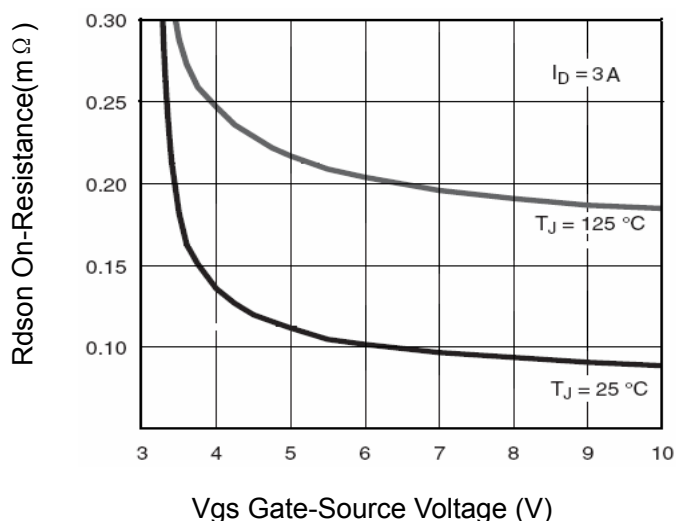**Figure 8 Drain-Source On-Resistance**
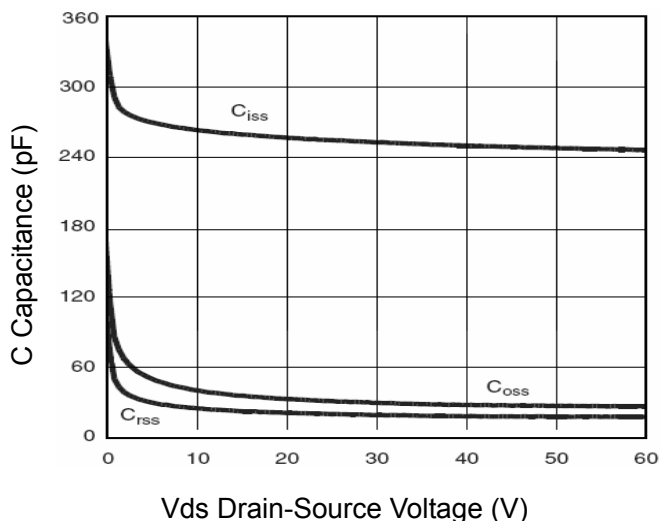

Figure 9 Rdson vs Vgs
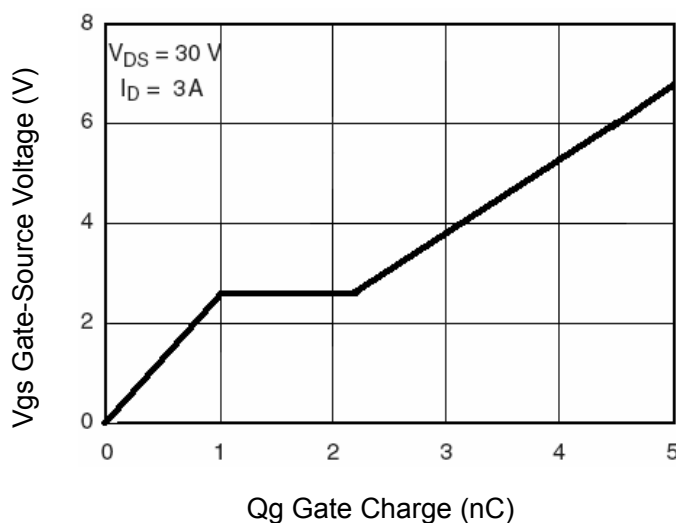

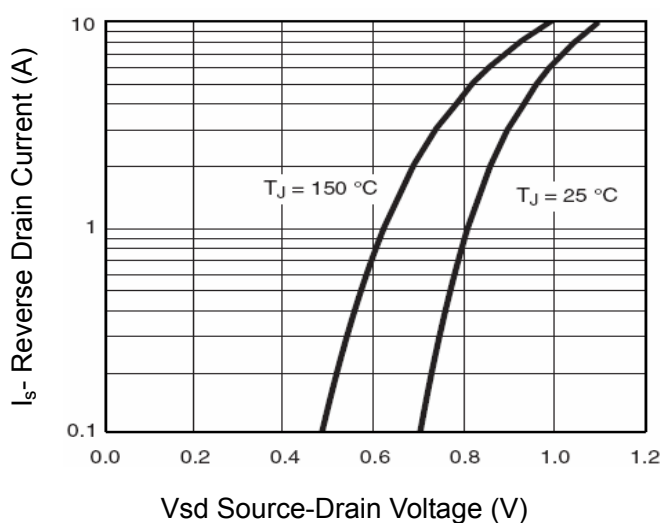**Figure 10 Capacitance vs Vds**

Figure 11 Gate Charge

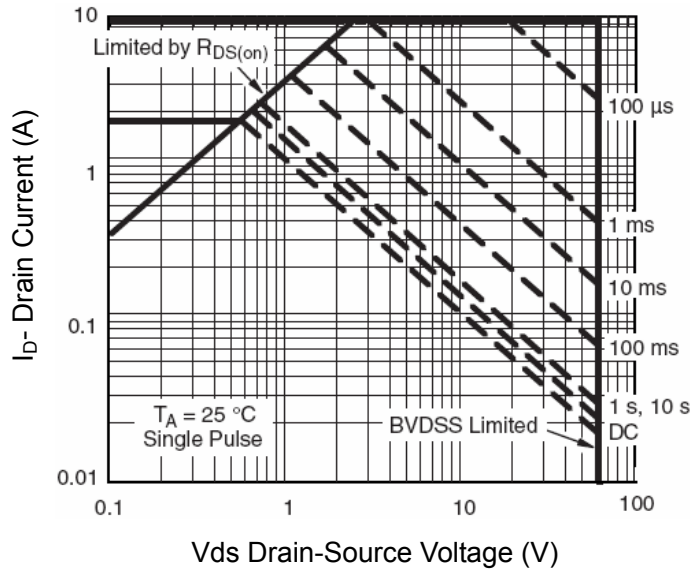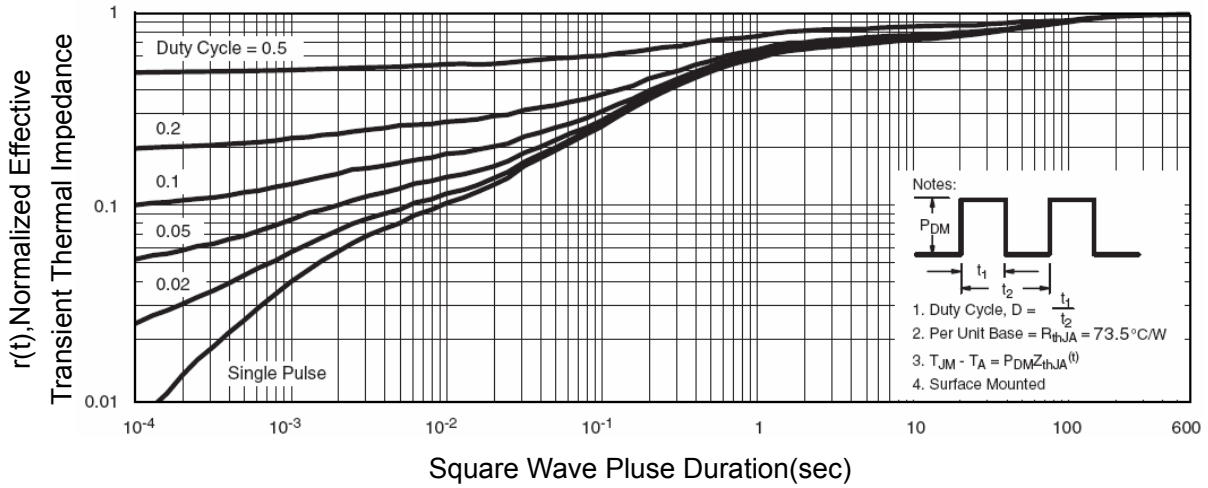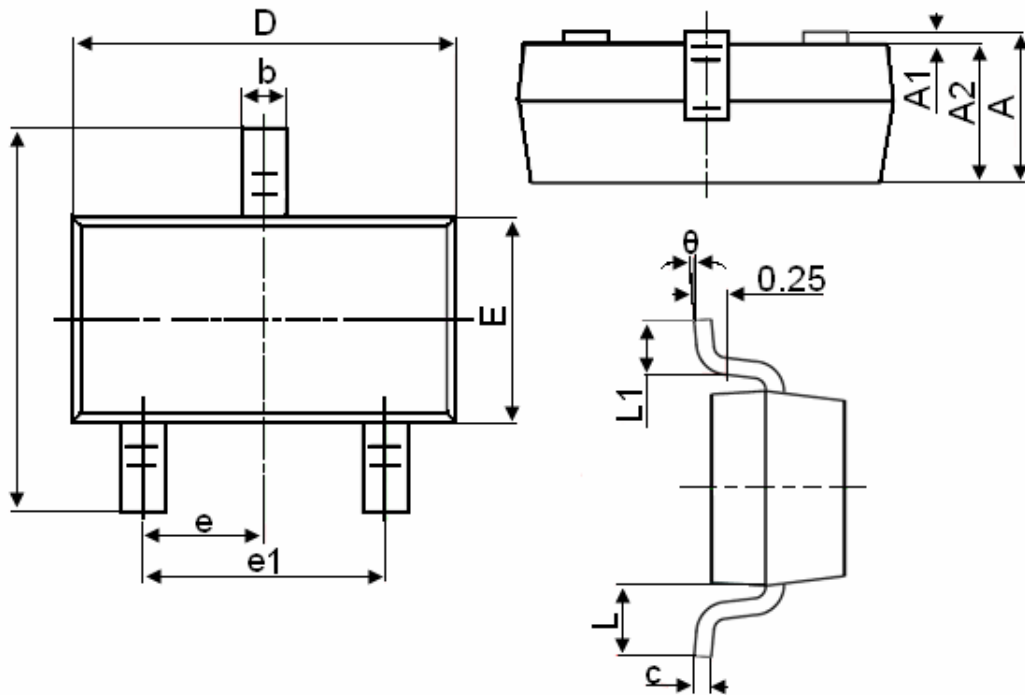**Figure 12 Source- Drain Diode Forward**

Figure 13 Safe Operation Area

Figure 14 Normalized Maximum Transient Thermal Impedance

SOT-23 Package Information

Symbol	Dimensions in Millimeters	
	MIN.	**MAX.**
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by SLKORMICRO *manufacturer:*

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FSS804-TL-E 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IRF7380TRHR IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 JANTX2N6796U JANTX2N6784U JANTXV2N5416U4 SQM110N05-06L-GE3 SIHF35N60E-GE3