

P-Channel Enhancement Mode MOSFET

1. Product Information

Features

- High power and current handing capability
- Lead free product is acquired
- Surface mount package

Applications

- PWM applications
- Load switch
- Power management
- Halogen-free

Quick reference

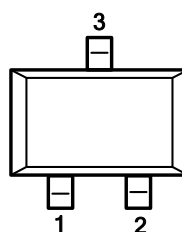
- $B_V \geq -20V$
- $I_D \leq -6.0A$
- $R_{DS(ON)} \leq 20m\Omega$ @ $V_{GS} = -4.5V$ (Type: 17m Ω)
- $R_{DS(ON)} \leq 28m\Omega$ @ $V_{GS} = -2.5V$ (Type: 22m Ω)

Pin Description

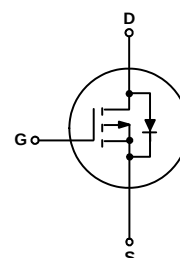
Pin	Description
1	Gate(G)
2	Source(S)
3	Drain(D)

Simplified Outline

Symbol



Top View
SOT23



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ2317S	SOT-23	2317 YWWXXX	YWWXXX: Date Code		3000

2. Absolute Maximum Ratings ($T_c=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current -Continuous	I_D	-6	A
Drain Current -Pulsed ^(Note 1)	I_{DM}	-24	A
Maximum Power Dissipation	P_D	1.8	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Thermal Resistance, Junction-to-Ambient ^(Note 2)	$R_{\theta JA}$	69	$^\circ C/W$
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3. Electrical Characteristics (T_J=25°C, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-12V,V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V,V _{DS} =0V	-	-	±100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA	-0.4	-0.55	-1.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-6A	-	17	20	mΩ
		V _{GS} =-2.5V, I _D =-5A	-	22	28	
Forward Transconductance	g _{FS}	V _{DS} =-5V,I _D =-6A		20	-	S
Dynamic Characteristics ^(Note4)						
Input Capacitance	C _{iss}	V _{DS} =-6V,V _{GS} =0V, F=1.0MHz	-	1730	-	PF
Output Capacitance	C _{oss}		-	320	-	PF
Reverse Transfer Capacitance	C _{rss}		-	210	-	PF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-6V,I _D =-1A , R _L =6Ω,V _{GEN} =-4.5V,R _g =6Ω	-	20	-	nS
Turn-on Rise Time	t _r		-	35	-	nS
Turn-Off Delay Time	t _{d(off)}		-	90	-	nS
Turn-Off Fall Time	t _f		-	70	-	nS
Total Gate Charge	Q _g	V _{DS} =-6V,I _D =-6A,V _{GS} =-4.5V	-	19.5	-	nC
Gate-Source Charge	Q _{gs}		-	4.1	-	nC
Gate-Drain Charge	Q _{gd}		-	5.2	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V,I _S =-1.0A	-	-	-1.2	V
Diode Forward Current ^(Note 2)	I _S		-	-	-6	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

4. Typical Characteristics

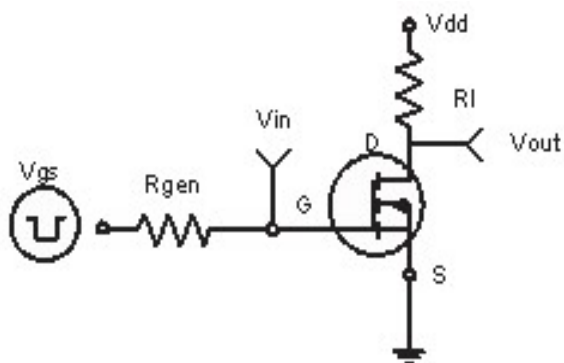


Figure 1: Switching Test Circuit

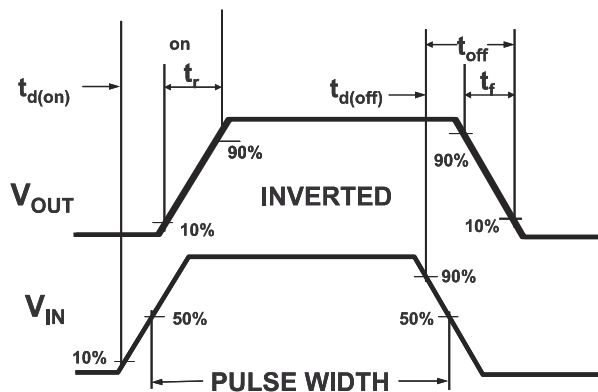
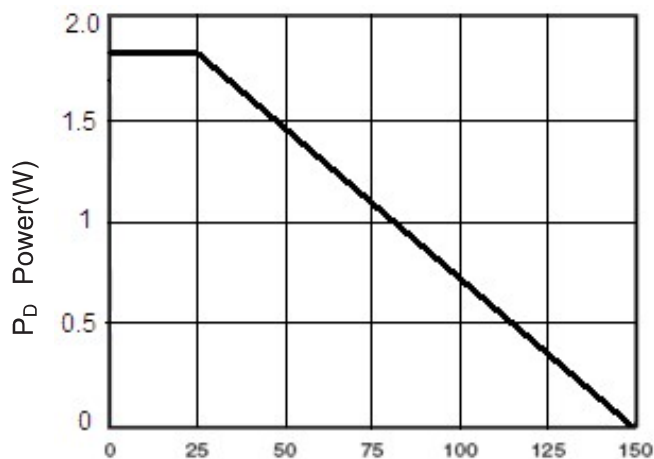
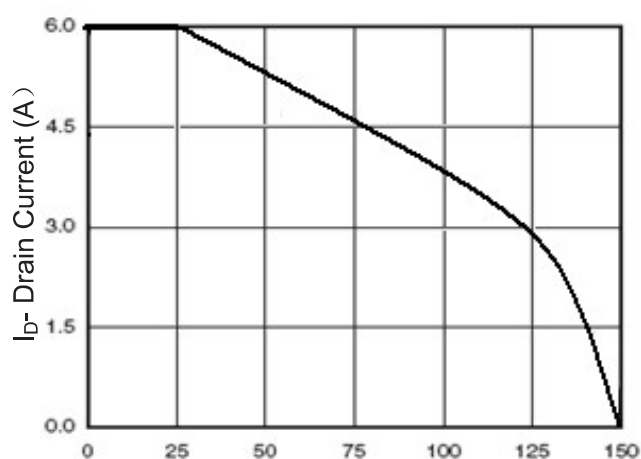


Figure 2: Switching Waveforms



T_J -Junction Temperature($^{\circ}\text{C}$)

Figure 3 Power Dissipation



T_J -Junction Temperature($^{\circ}\text{C}$)

Figure 4 Drain Current

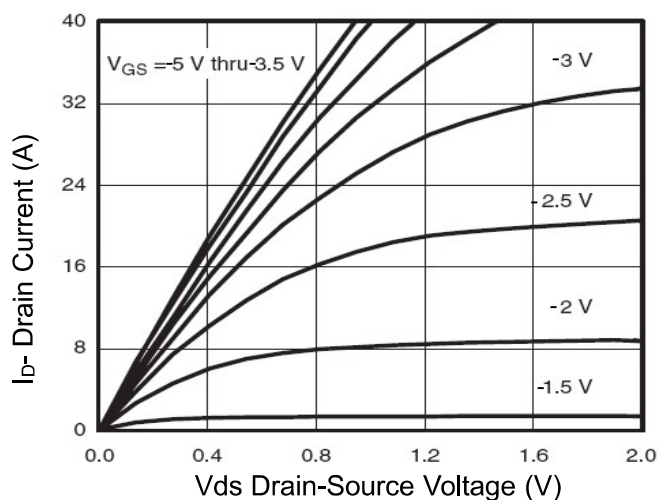


Figure 5 Output Characteristics

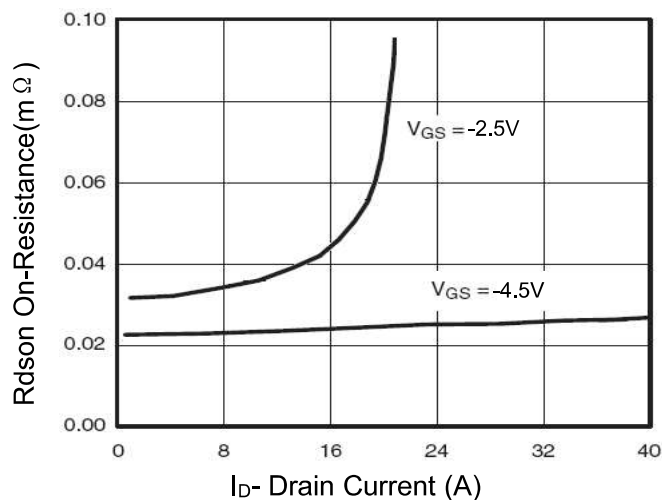
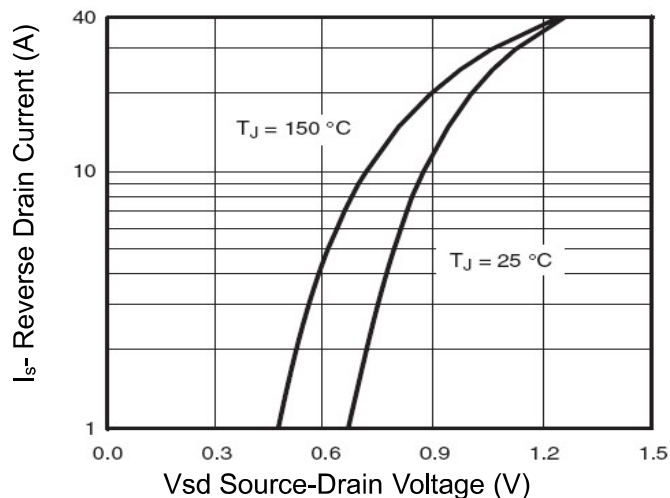
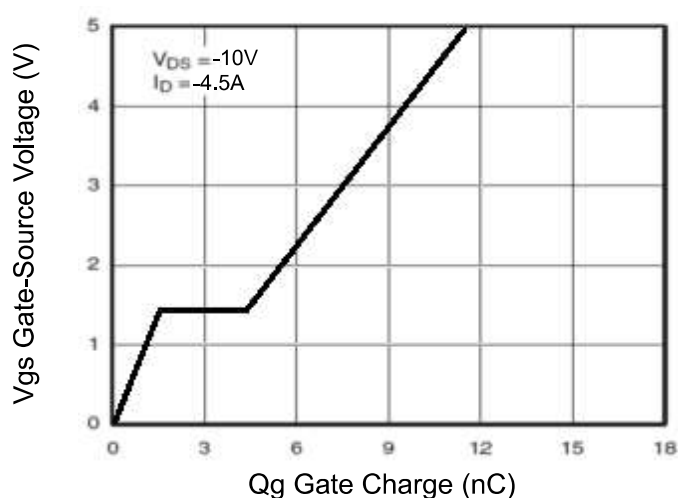
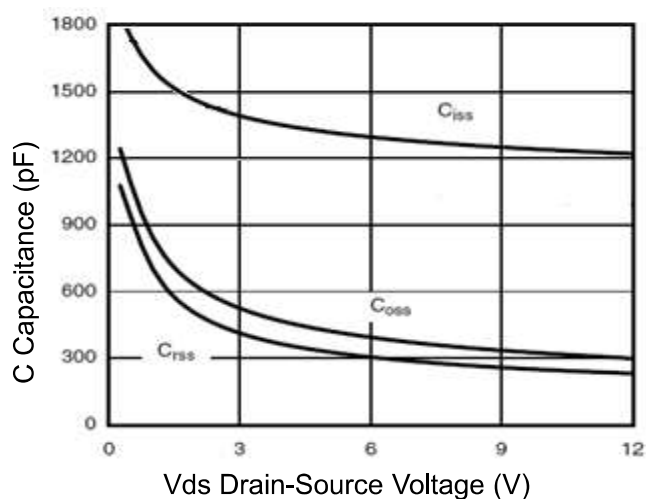
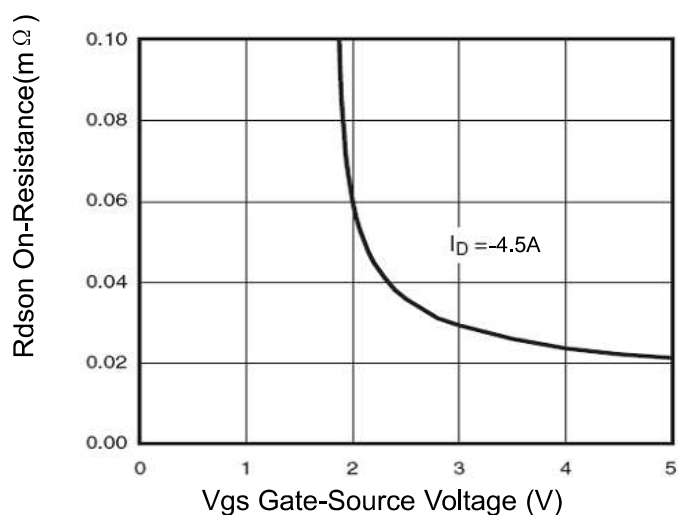
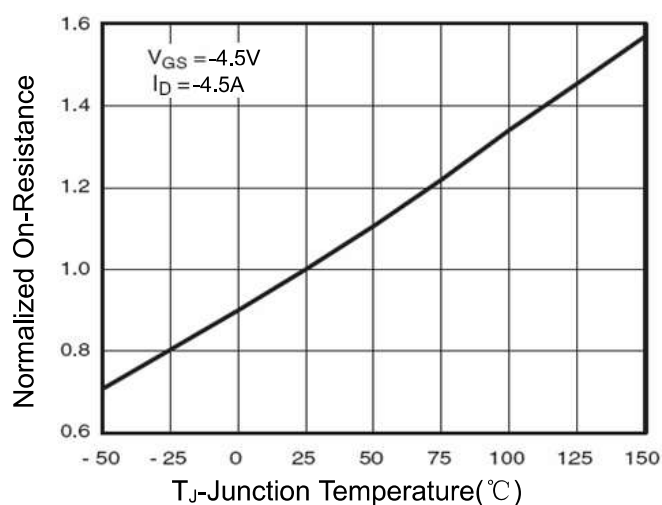
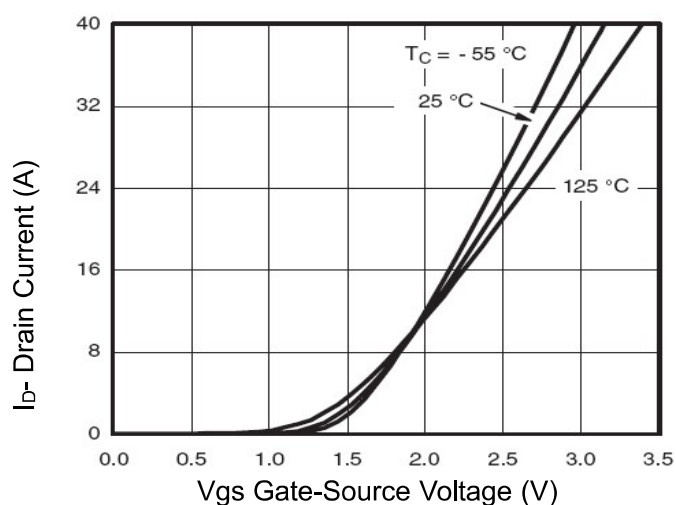
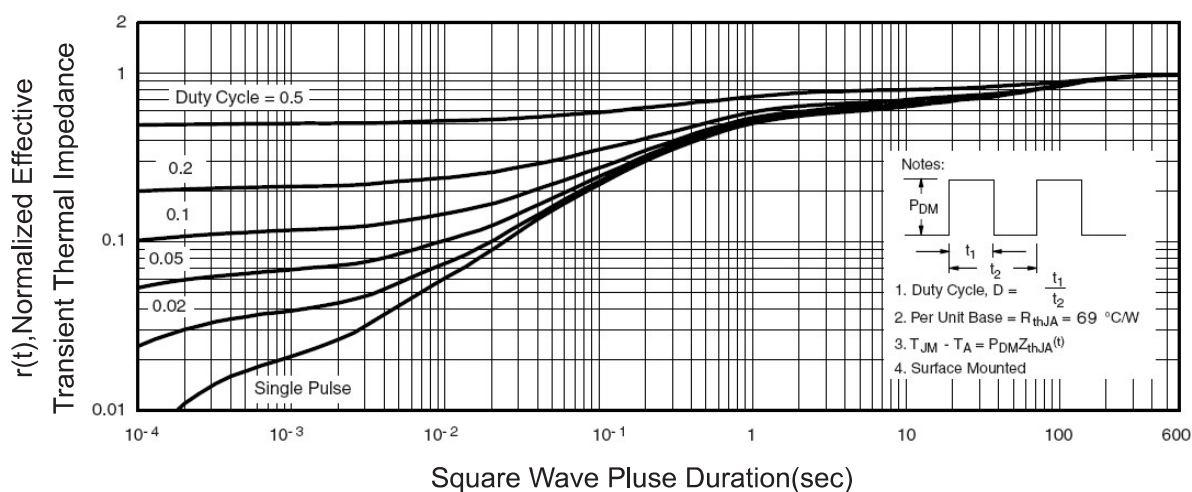
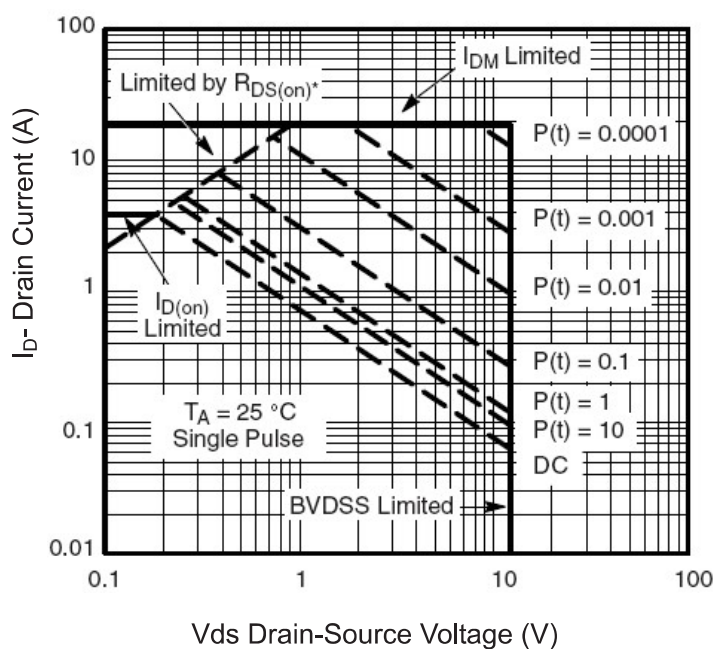


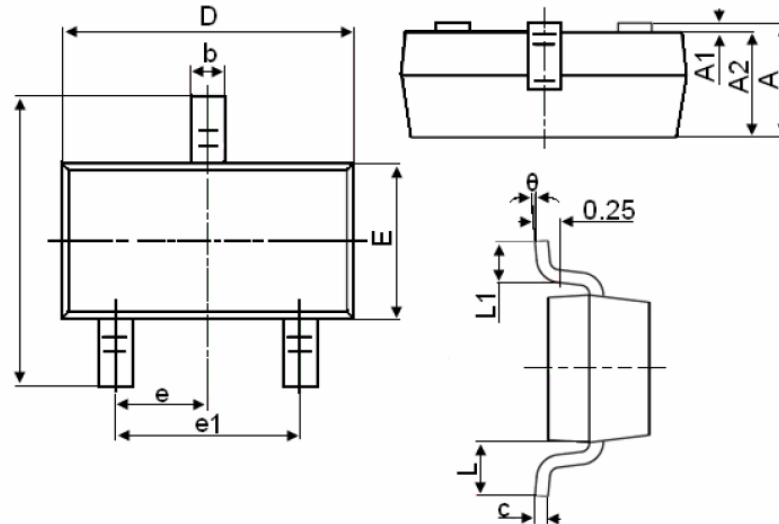
Figure 6 Drain-Source On-Resistance





5.Package Mechanical Data

SOT-23



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°