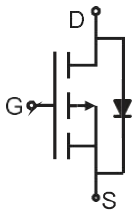
Description

The 2317A uses advanced trench technology to provide excellent R_{DS}(oN), low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch or in PWM applications.



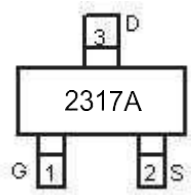
Schematic diagram

General Features

- V_{DS} = - 20V,I_D = - 7A

  R_{DS}(ON)< 18mΩ(max)@ V_{GS}= - 2.5V
  R_{DS}(ON)< 13mΩ(max)@ V_{GS}= - 4.5V

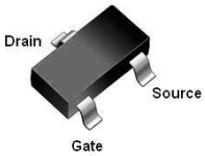
- High power and current handing capability
- Lead free product is acquired
- Surface mount package



Marking and pin assignment

Application

- PWM applications
- Load switch
- Power management
- Halogen-free
- P/N suffix V means AEC-Q101 qualified, e.g:RM2333V



SOT-23-3 top view

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
2317A		SOT-23-3	Ø180mm	8 mm	3000 units

Absolute Maximum Ratings (TA=25℃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	-7	A
Drain Current -Pulsed (Note1)	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	℃

Thermal Characteristic

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	69	℃/W

Electrical Characteristics (TA=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	-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	-0.8	-1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-6A	-	13	16	mΩ
		V_{GS}=-2.5V, I_D=-5A	-	18	24	
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-6A		20	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	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

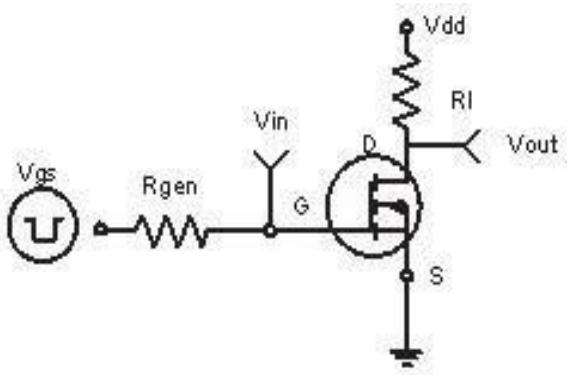


Figure 1:Switching Test Circuit

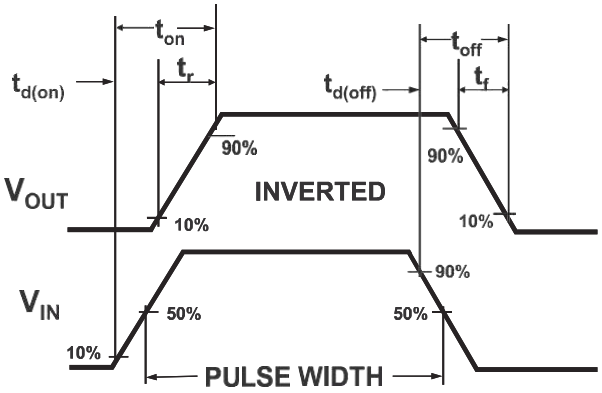


Figure 2:Switching Waveforms

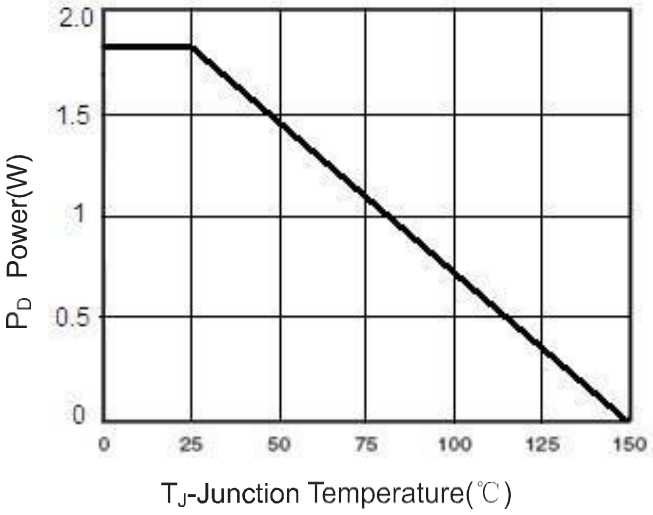


Figure 3 Power Dissipation

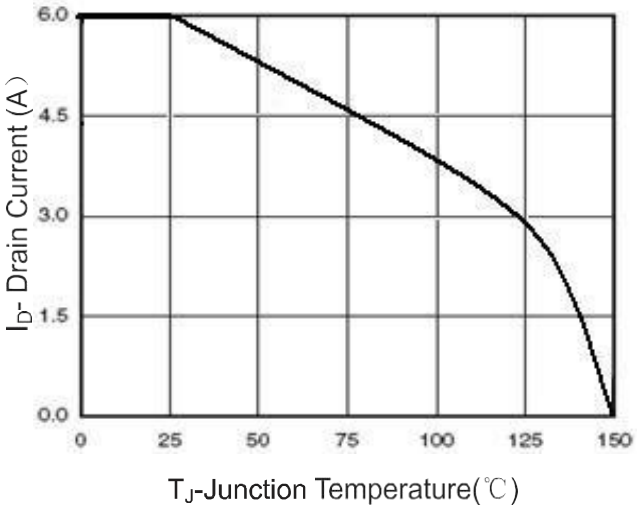


Figure 4 Drain Current

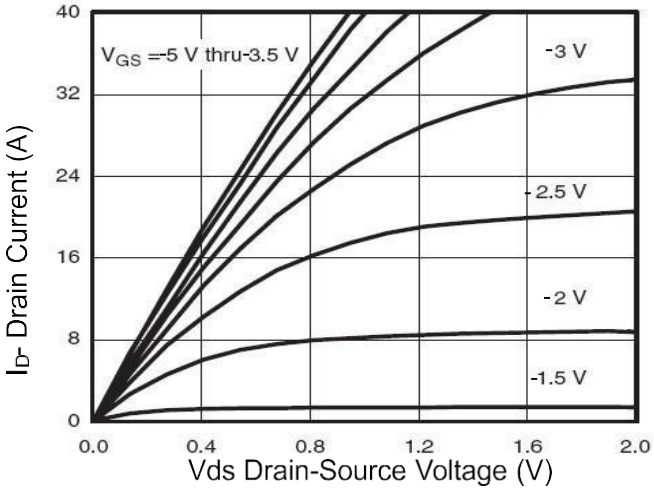


Figure 5 Output Characteristics

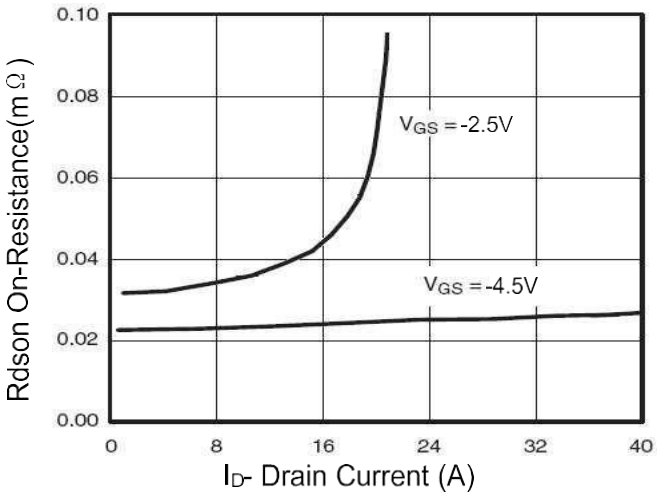


Figure 6 Drain-Source On-Resistance

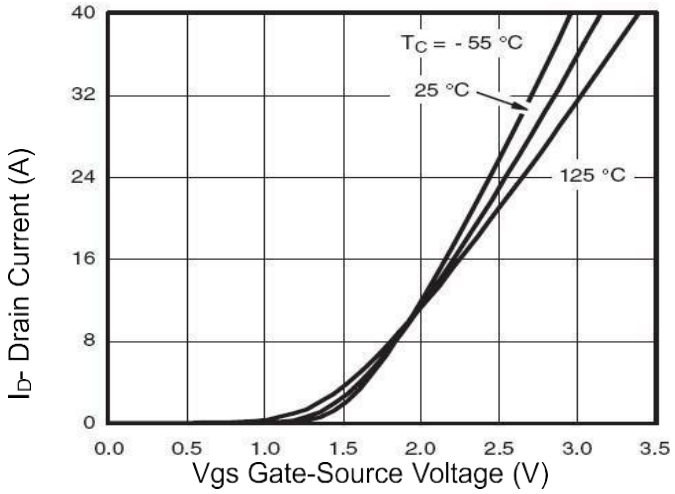


Figure 7 Transfer Characteristics

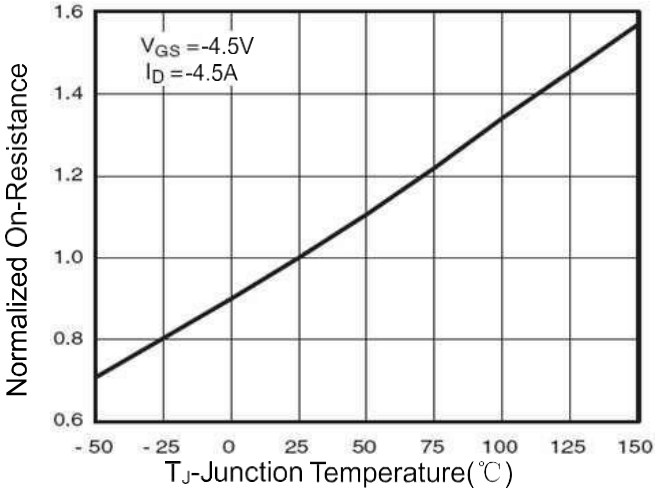


Figure 8 Drain-Source On-Resistance

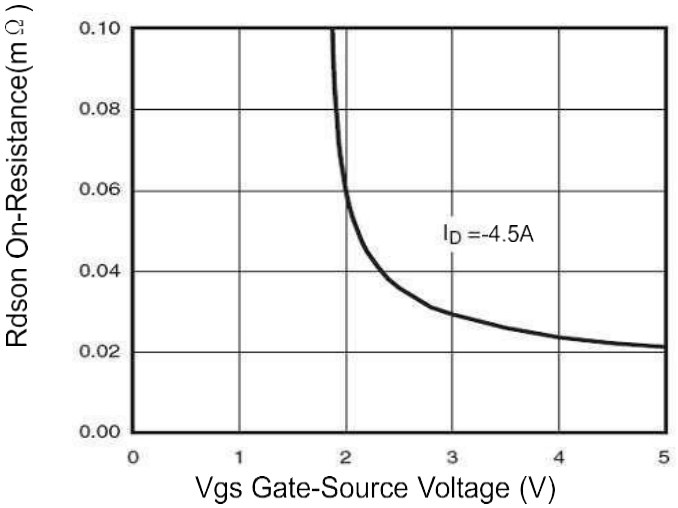


Figure 9 Rdson vs Vgs

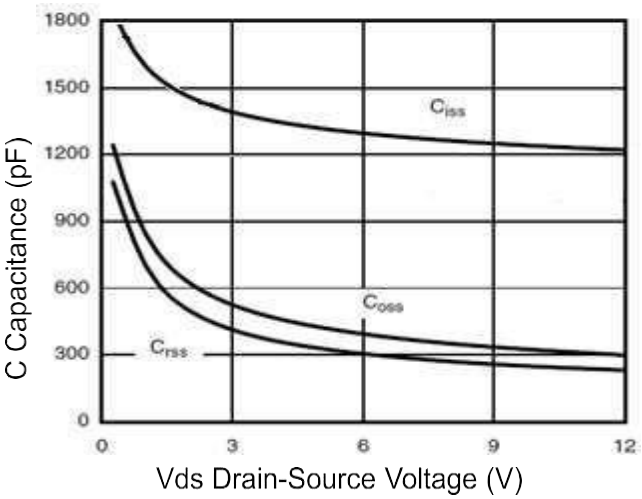


Figure 10 Capacitance vs Vds

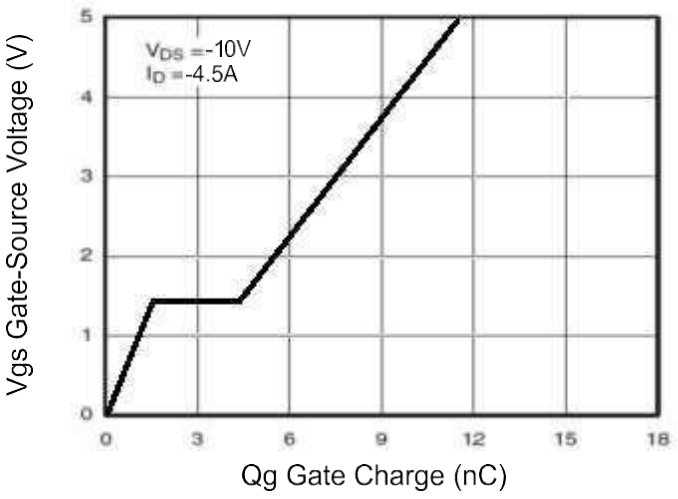


Figure 11 Gate Charge

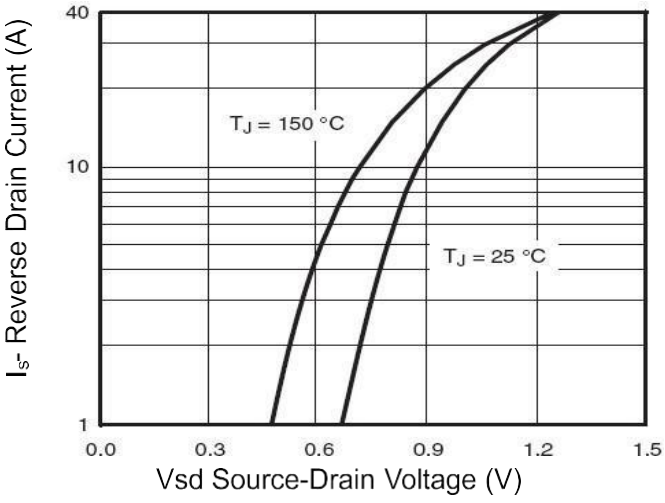


Figure 12 Source- Drain Diode Forward

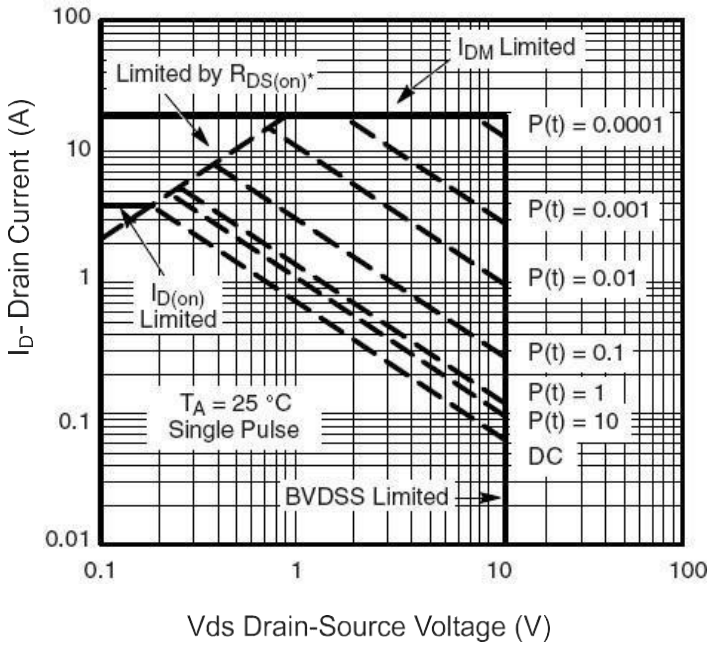


Figure 13 Safe Operation Area

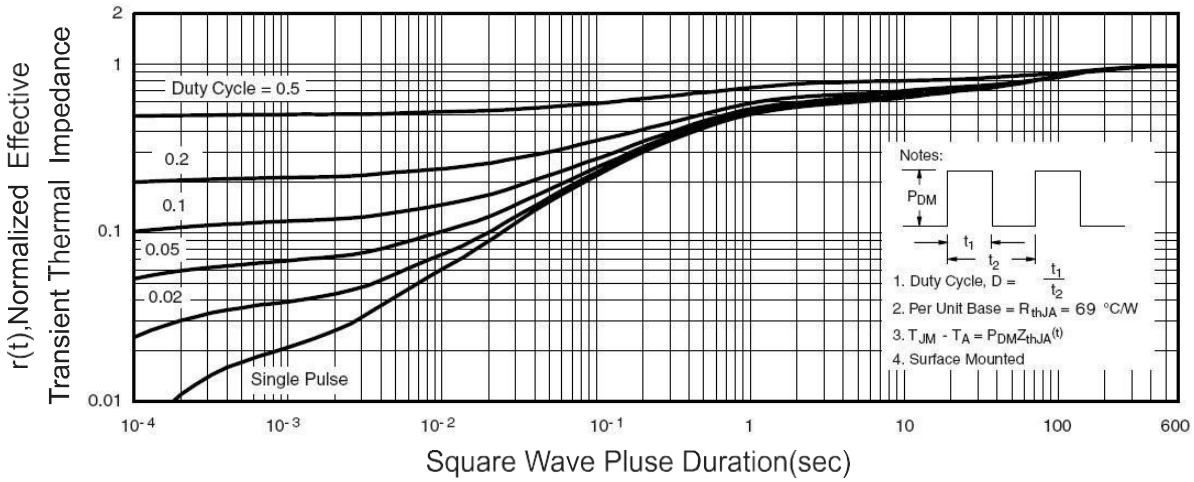
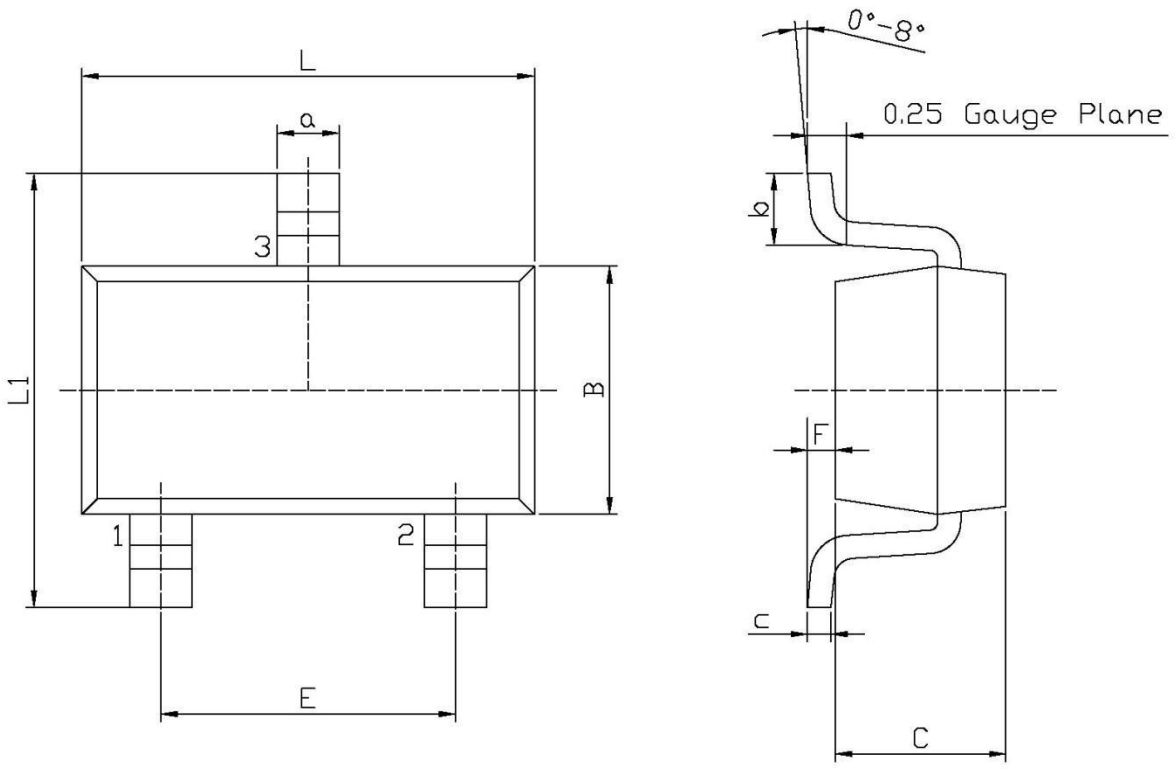


Figure 14 Normalized Maximum Transient Thermal Impedance

SOT-23-3 Package Information



Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.82	3.02	a	0.35	0.50
B	1.50	1.70	c	0.10	0.20
C	0.90	1.30	b	0.35	0.55
L1	2.60	3.00	F	0	0.15
E	1.80	2.00			

SOT23-3