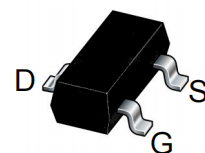


Features

$V_{DS} = -20V, I_D = -2.3A$

$R_{DS(ON)} < 140m\Omega @ V_{GS} = -4.5V$

$R_{DS(ON)} < 162m\Omega @ V_{GS} = -2.5V$

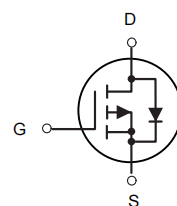


SOT23

Application

PWM applications

Load switch



P-Channel MOSFET

Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Drain Current-Continuous	-2.3	A
I_{DM}	Drain Current-Pulsed (Note 1)	-10	A
P_D	Maximum Power Dissipation	0.7	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 2)	178	°C/W

Electrical Characteristics (TA=25°C unless otherwise specified)

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} =-20V,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	-0.7	-1	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-2A		120	140	mΩ
		V _{GS} =-2.5V, I _D =-1.8A		145	162	mΩ
Forward Transconductance	g _{FS}	V _{DS} =-5V,I _D =-2A	4	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =-10V,V _{GS} =0V, F=1.0MHz	-	285	-	PF
Output Capacitance	C _{oss}		-	58	-	PF
Reverse Transfer Capacitance	C _{rss}		-	32	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-10V, R _L =5Ω V _{GS} =-4.5V,R _{GEN} =3Ω	-	9.8	-	nS
Turn-on Rise Time	t _r		-	4.9	-	nS
Turn-Off Delay Time	t _{d(off)}		-	20.5	-	nS
Turn-Off Fall Time	t _f		-	7	-	nS
Total Gate Charge	Q _g	V _{DS} =-10V,I _D =-2A, V _{GS} =-4.5V	-	2.9	-	nC
Gate-Source Charge	Q _{gs}		-	0.45	-	nC
Gate-Drain Charge	Q _{gd}		-	0.75	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V,I _S =-2A	-	-	-1.2	V
Diode Forward Current (Note 2)	I _S		-	-	-2.0	A

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

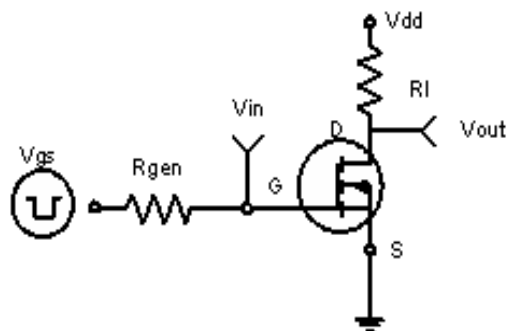


Figure 1: Switching Test Circuit

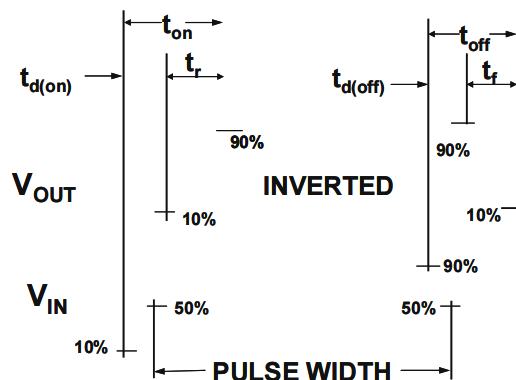
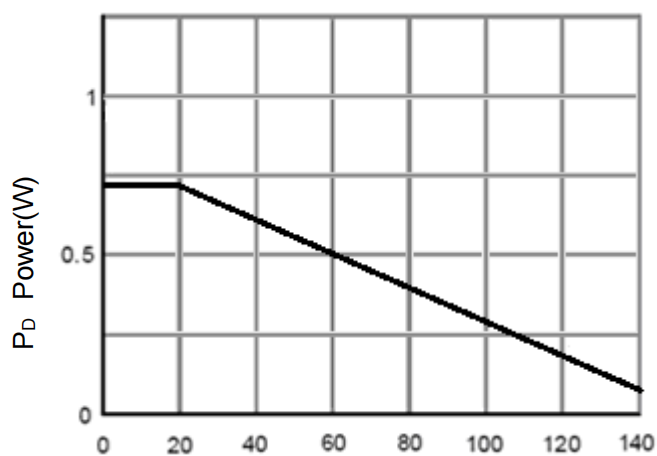
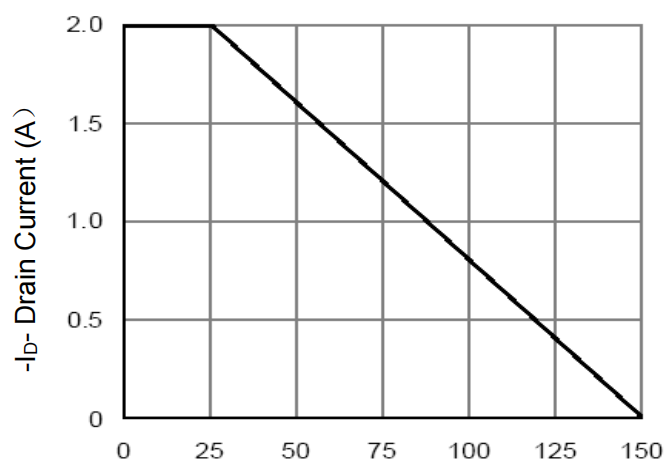


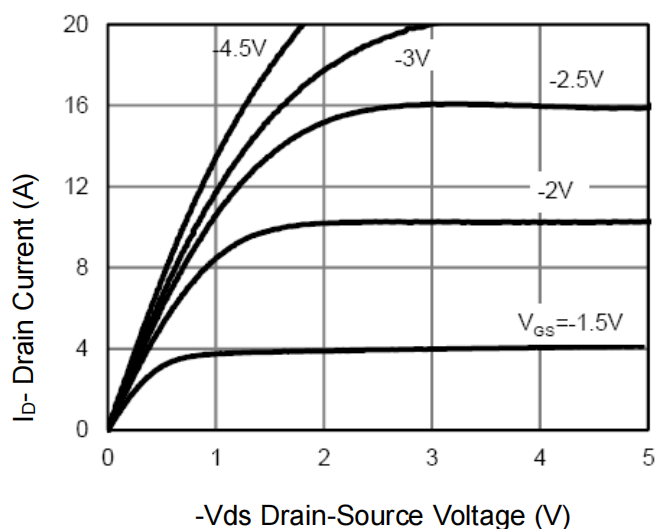
Figure 2: Switching Waveforms



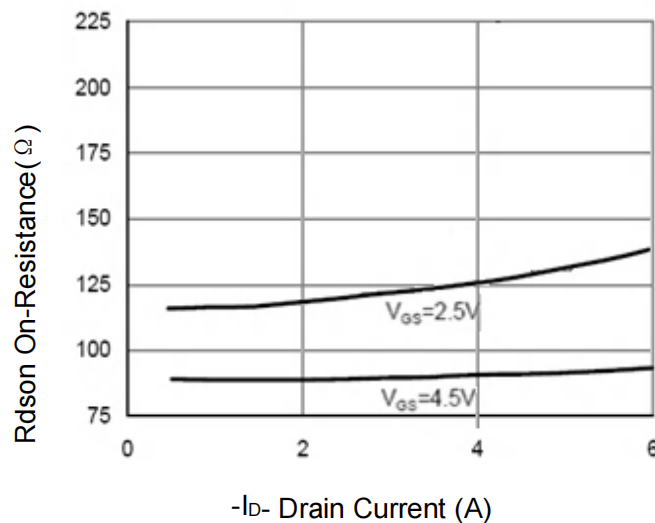
T_J -Junction Temperature($^\circ\text{C}$)
Figure 3 Power Dissipation



T_J -Junction Temperature($^\circ\text{C}$)
Figure 4 Drain Current



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



-ID- Drain Current (A)
Figure 6 Drain-Source On-Resistance

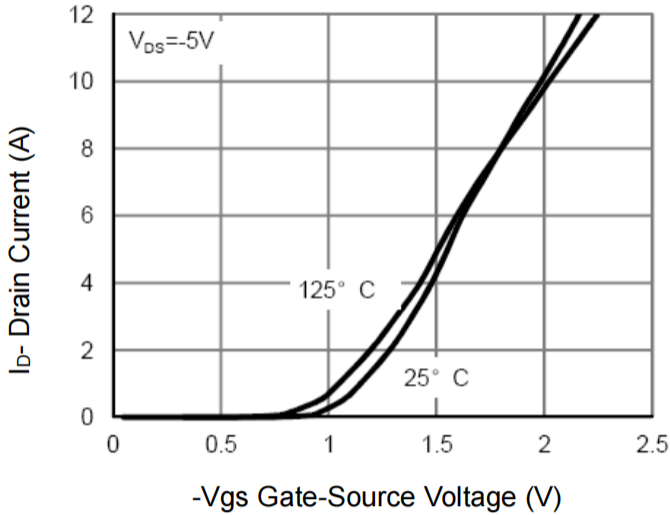


Figure 7 Transfer Characteristics

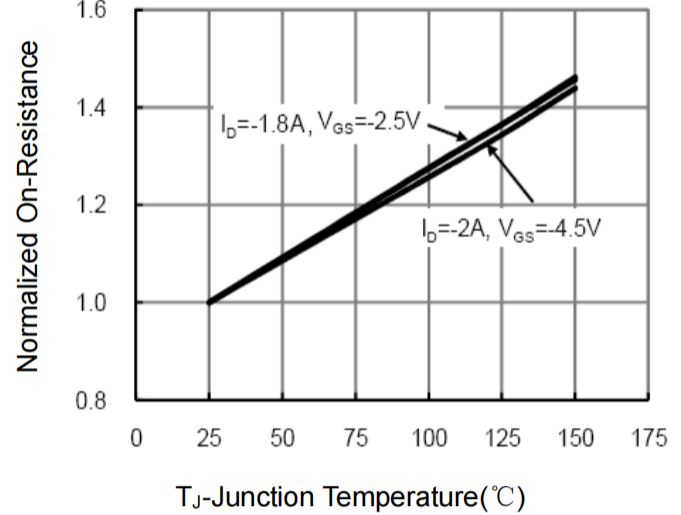


Figure 8 Drain-Source On-Resistance

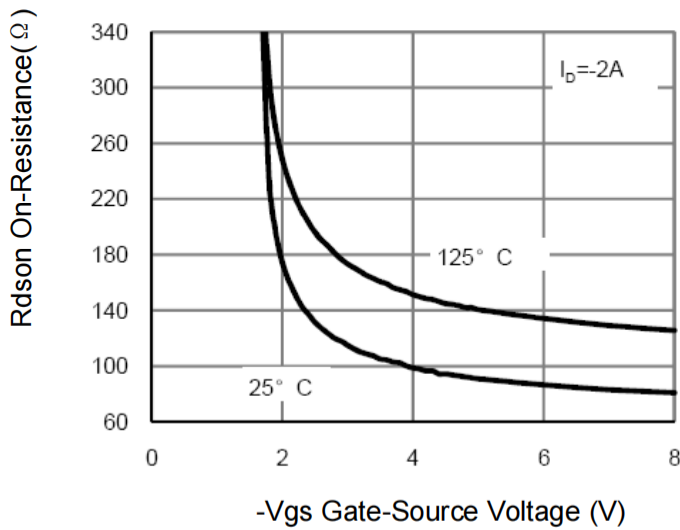


Figure 9 Rdson vs Vgs

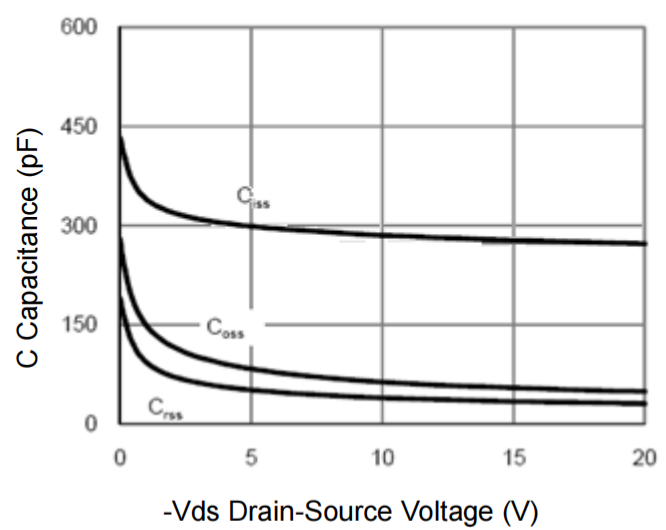


Figure 10 Capacitance vs Vds

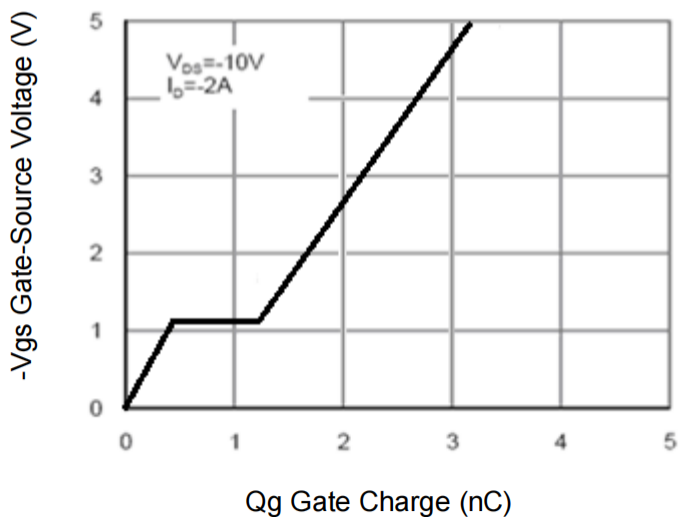


Figure 11 Gate Charge

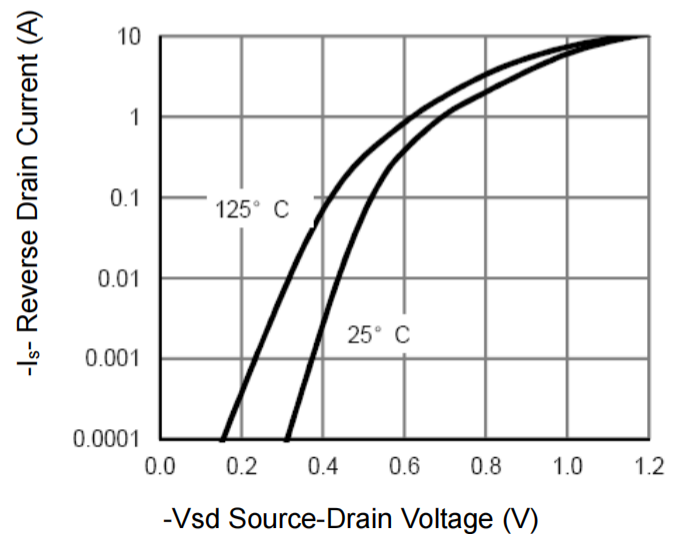


Figure 12 Source- Drain Diode Forward

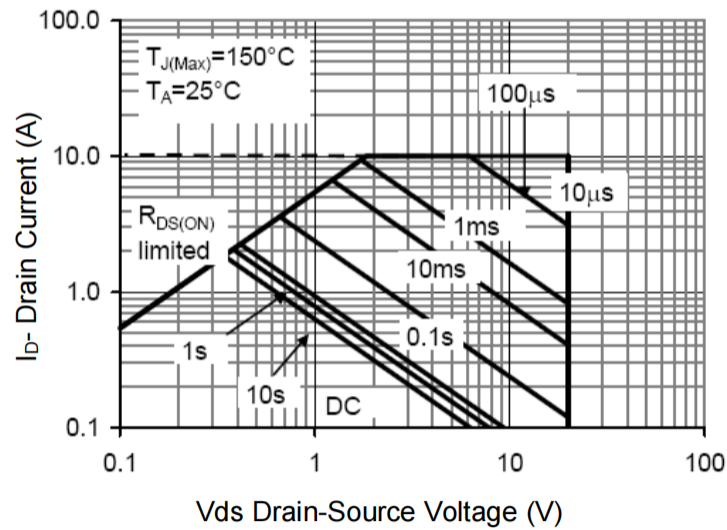


Figure 13 Safe Operation Area

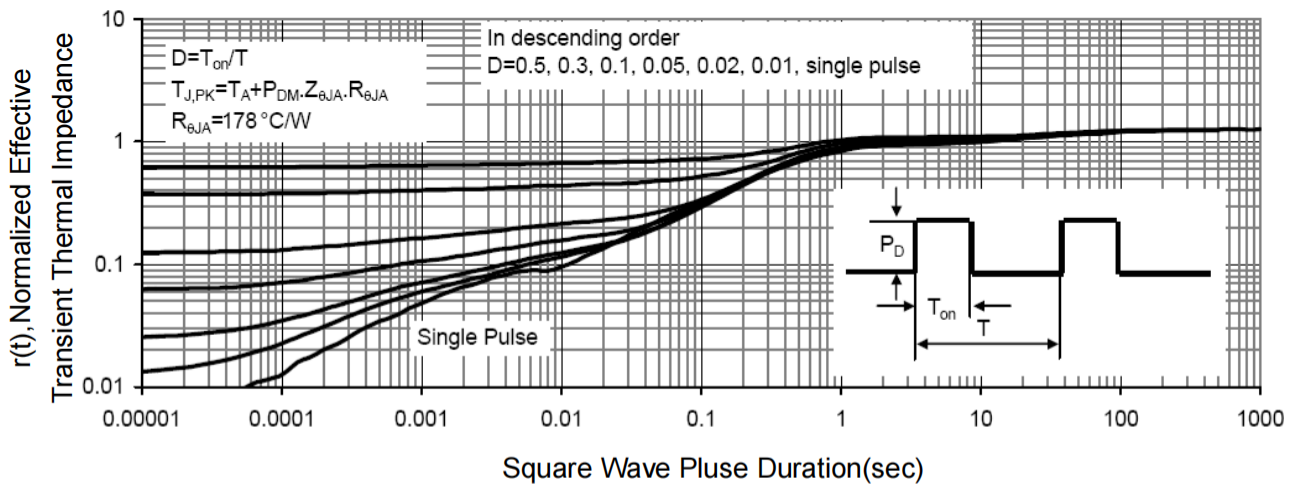
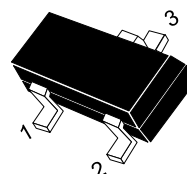
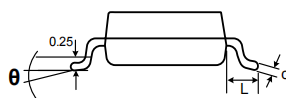
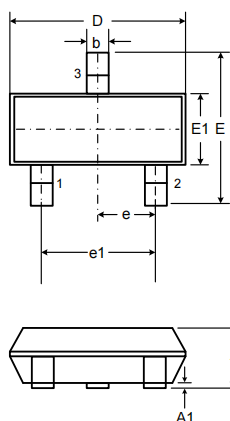


Figure 14 Normalized Maximum Transient Thermal Impedance

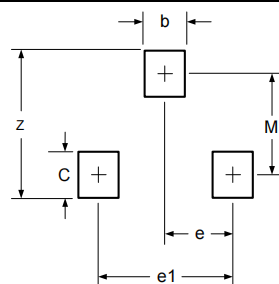
Outline Drawing – SOT23

PACKAGE OUTLINE



DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.45	0.65	0.018	0.026
θ	0	8°	0	8°



DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.080	2.02
C	0.032	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.90 BSC
b	0.032	0.80

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.