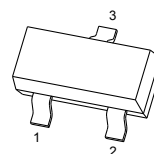


Features

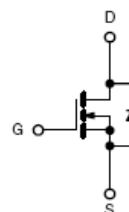
- TrenchFET Power MOSFET
- Lead free product is acquired
- Surface mount package

SOT23



- 1.GATE
- 2.SOURCE
- 3.DRAIN

Equivalent Circuit



APPLICATION

- Load Switch for Portable Devices
- DC/DC Converter

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	
Continuous Drain Current	I_D	3.0	A
Pulsed Drain Current*1	I_{DM}	10	
Continuous Source-Drain Diode Current	I_S	1.0	
Maximum Power Dissipation	P_D	1.0	W
Thermal Resistance from Junction to Ambient($t \leq 5s$)	$R_{\theta JA}$	156	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55 ~+150	

Note :

*1. Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	20			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	0.5	0.8	1.0	
Gate-source leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =4.5V, I _D =3A		0.045	0.050	Ω
		V _{GS} =2.5V, I _D =2A		0.055	0.065	
Forward transconductance ^a	g _{fs}	V _{DS} =5V, I _D =3A		8.0	-	S
Dynamic ^b						
Input capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz		300		pF
Output capacitance	C _{oss}			120		
Reverse transfer capacitance	C _{rss}			80		
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =3A		4.0		nC
Gate-source charge	Q _{gs}			0.65		
Gate-drain charge	Q _{gd}			1.6		
Turn-on delay time	t _{d(on)}	V _{DD} =10V, I _D =3A V _{GEN} =4.5V, R _g =6Ω		15.0		ns
Rise time	t _r			85.0		
Turn-off delay time	t _{d(off)}			45.0		
Fall time	t _f			20.0		
Drain-source body diode characteristics						
Continuous source-drain diode current	I _s	T _C =25℃			1.0	A
Body diode voltage	V _{SD}	I _s =1.0A		0.7	1.3	V

Notes :

a. Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

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

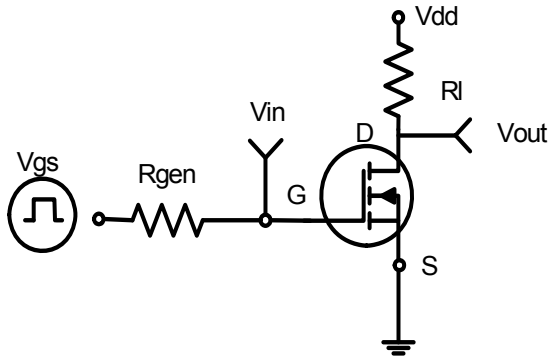


Figure 1: Switching Test Circuit

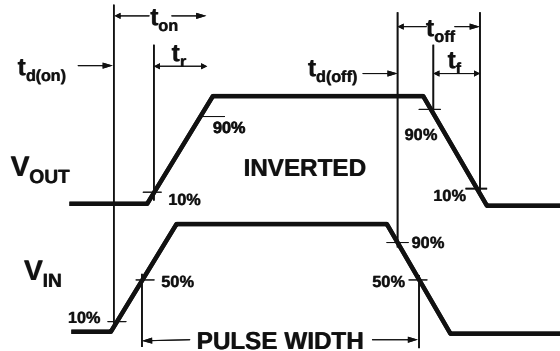


Figure 2: Switching Waveforms

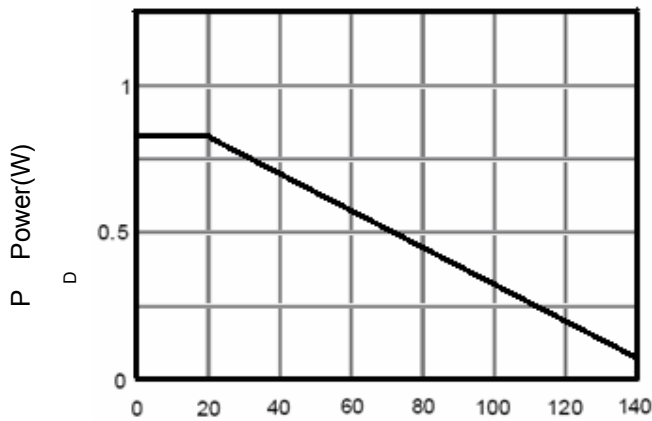


Figure 3 Power Dissipation

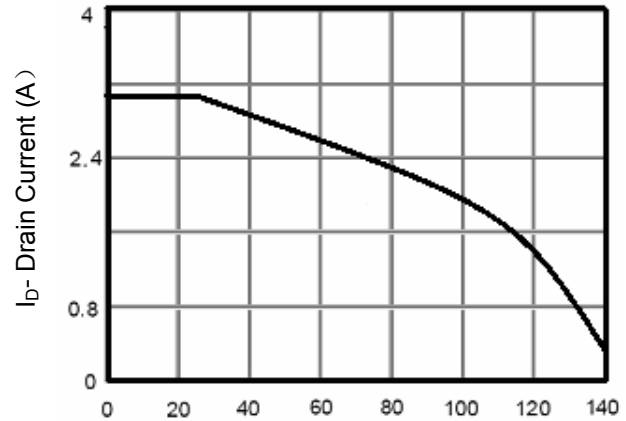


Figure 4 Drain Current

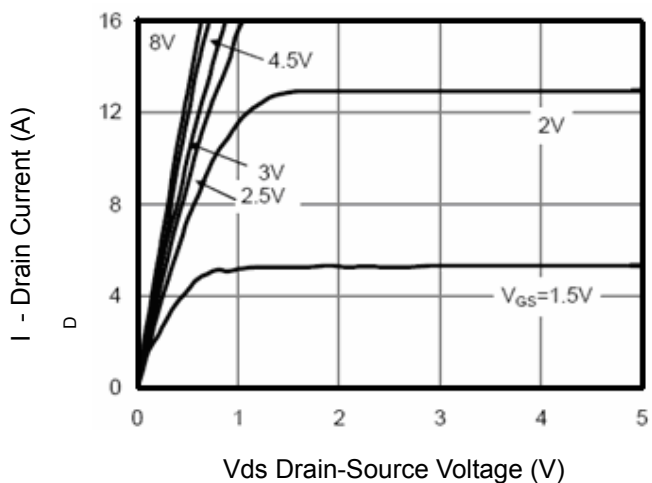


Figure 5 Output Characteristics

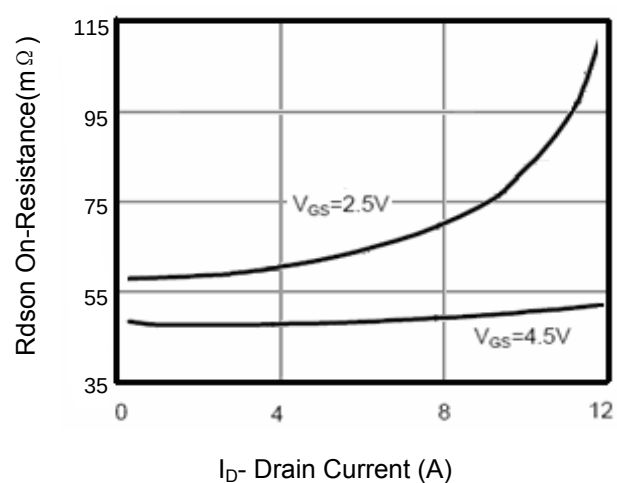


Figure 6 Drain-Source On-Resistance

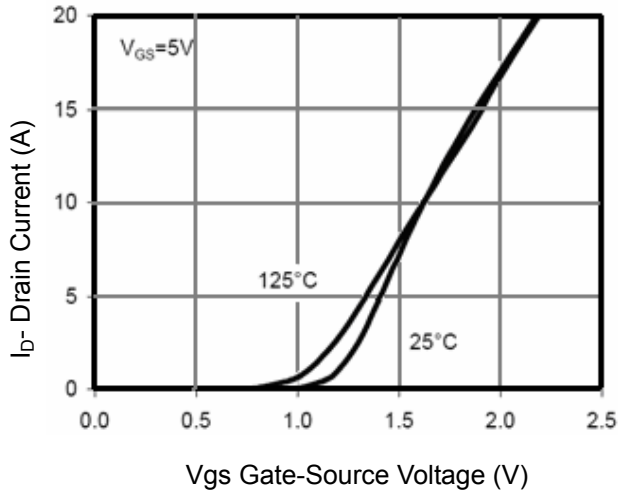


Figure 7 Transfer Characteristics

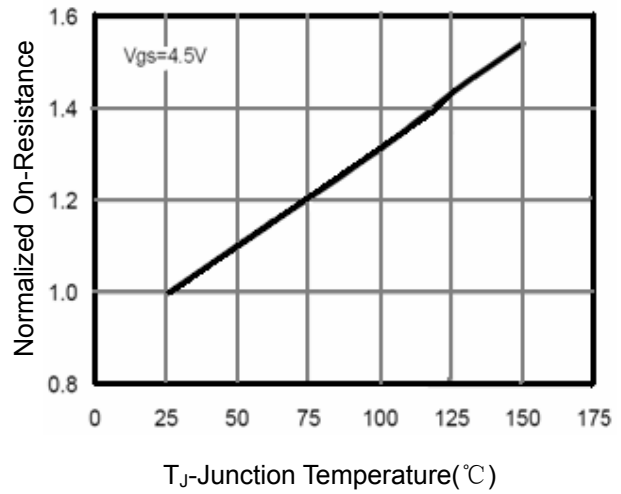


Figure 8 Drain-Source On-Resistance

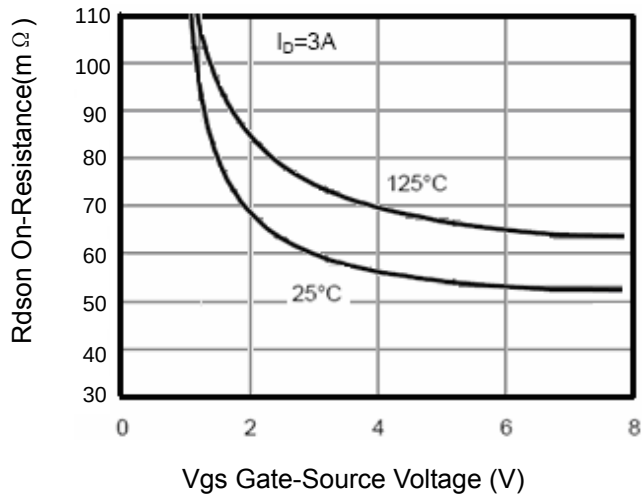


Figure 9 Rdson vs VGS

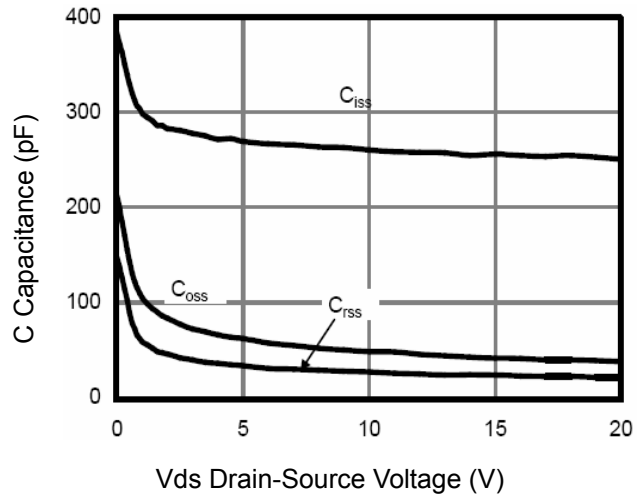


Figure 10 Capacitance vs Vds

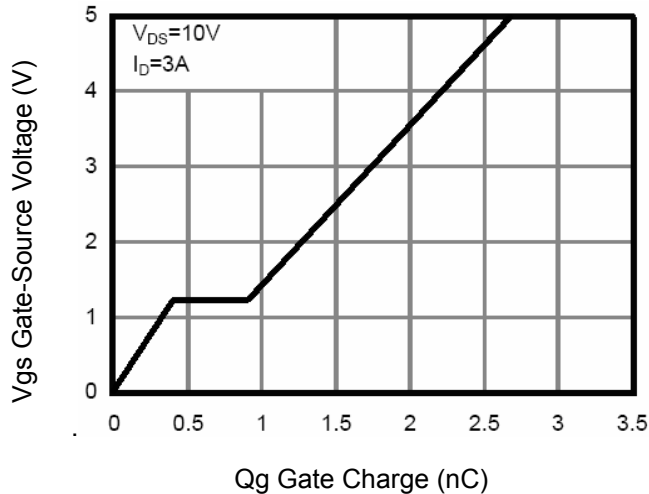


Figure 11 Gate Charge

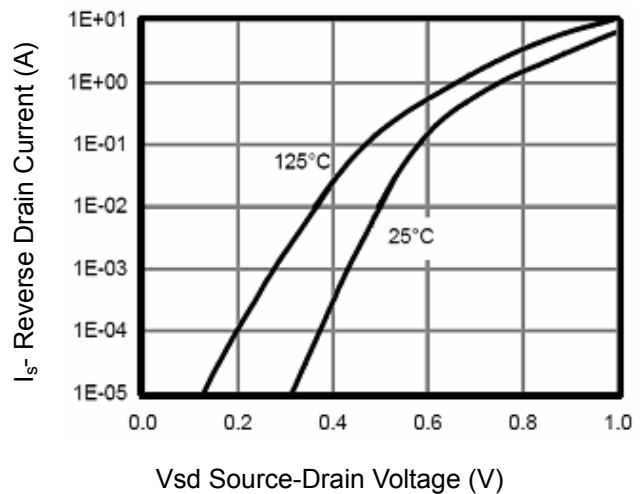


Figure 12 Source- Drain Diode Forward

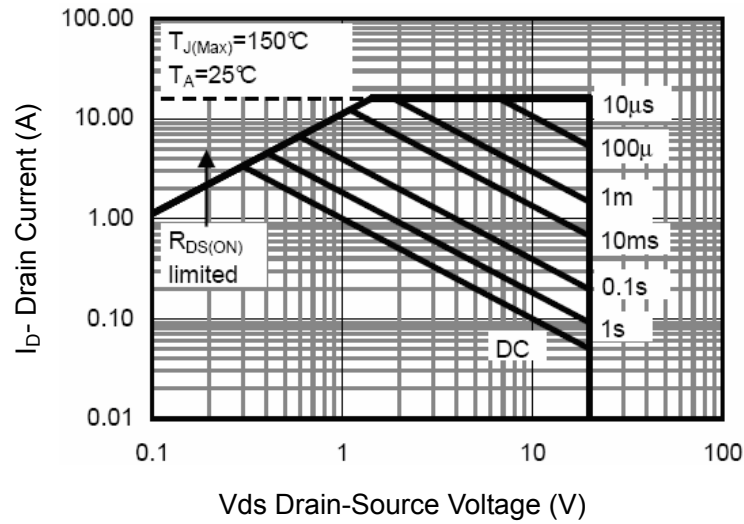


Figure 13 Safe Operation Area

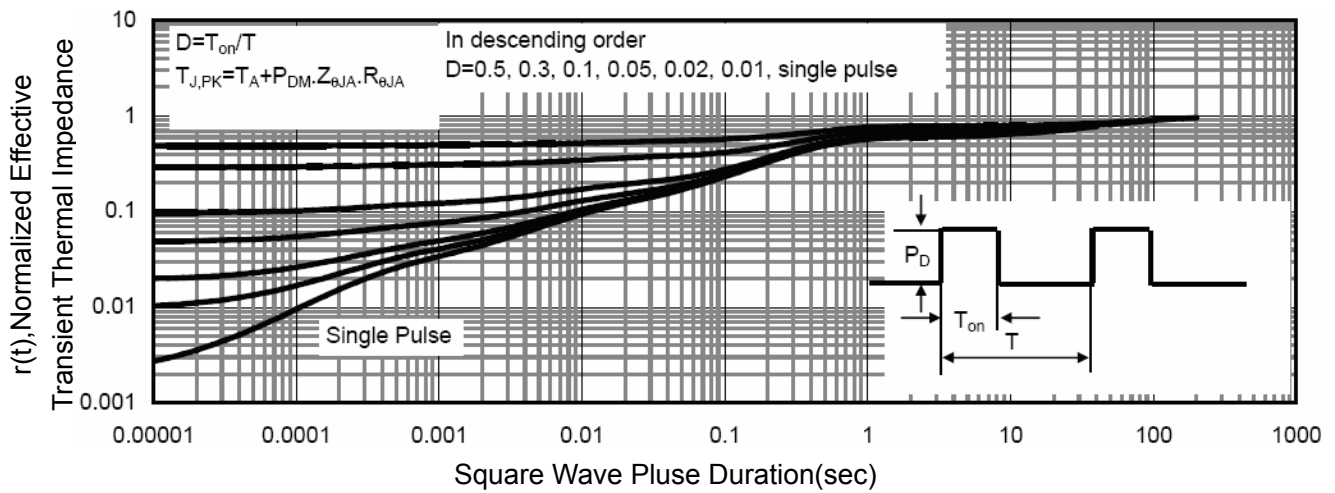
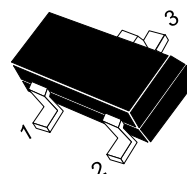
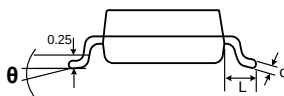
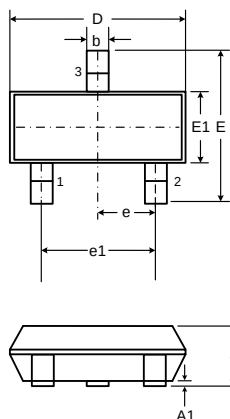


Figure 14 Normalized Maximum Transient Thermal Impedance

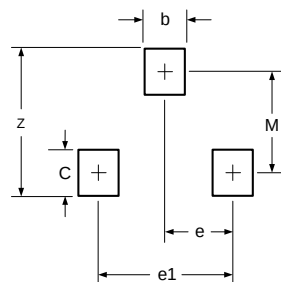
Outline Drawing – SOT23

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.