

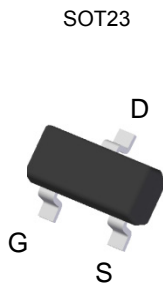
General Features

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	105mΩ@10V	3A
	125mΩ@4.5V	

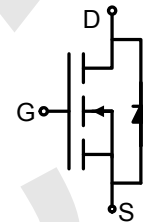
Application

Load/Power Switching
Interfacing Switching
Battery Management for Ultra Small Portable
Logic Level Shift

Package and Pin Configuration



Circuit diagram



Marking:



Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current (note 1)	I_{DM}	10	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	357	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage (note 3)	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.5		2	V
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} = 10V, I _D = 3A			105	mΩ
		V _{GS} = 4.5V, I _D = 3A			125	mΩ
Forward transconductance (note 3)	g _{FS}	V _{DS} = 15V, I _D = 2A	1.4			S
Diode forward voltage (note 3)	V _{SD}	I _S = 3A, V _{GS} = 0V			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		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 _{GS} = 10V, V _{DD} = 30V, I _D = 1.5A, R _{GEN} = 1Ω		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, V _{GS} = 4.5V, I _D = 3A		6		nC
Gate-Source Charge	Q _{gs}			1		nC
Gate-Drain Charge	Q _{gd}			1.3		nC

Typical Electrical and Thermal Characteristics (Curves)

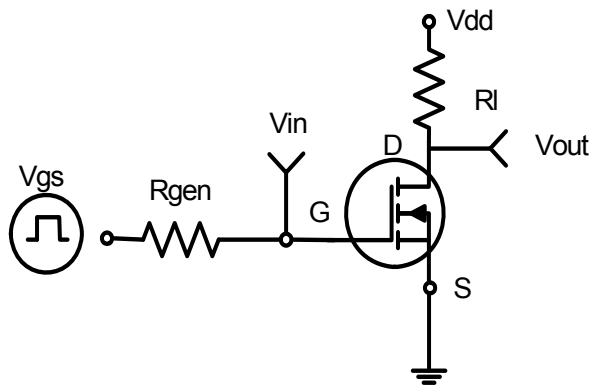


Figure 1: Switching Test Circuit

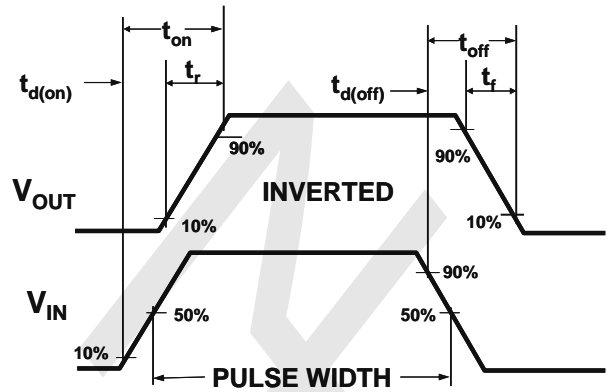


Figure 2: Switching Waveforms

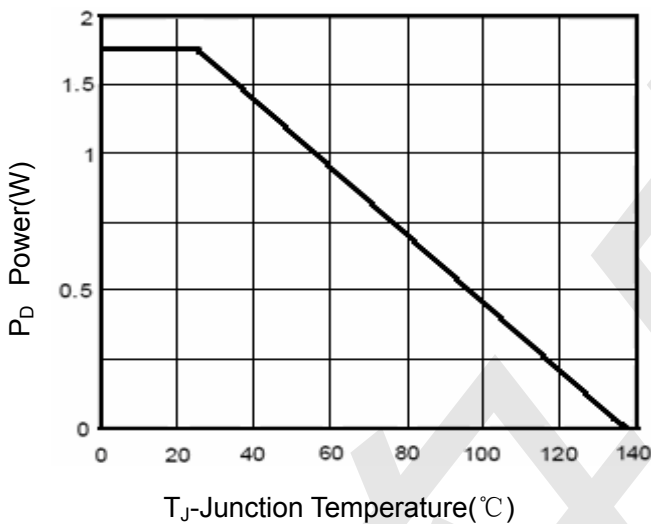


Figure 3 Power Dissipation

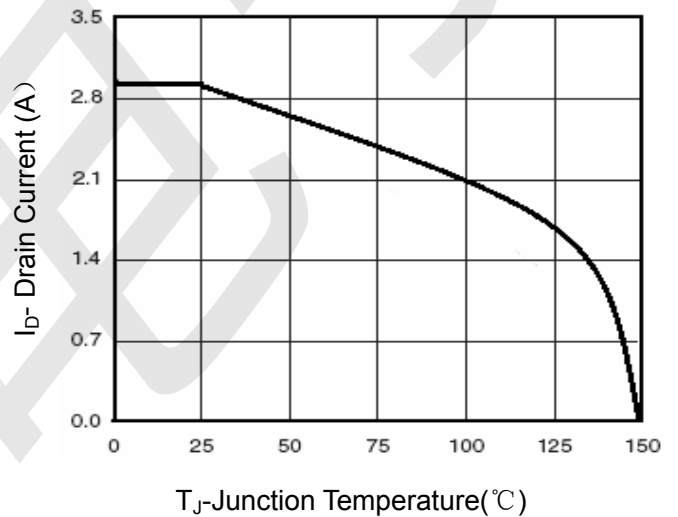


Figure 4 Drain Current

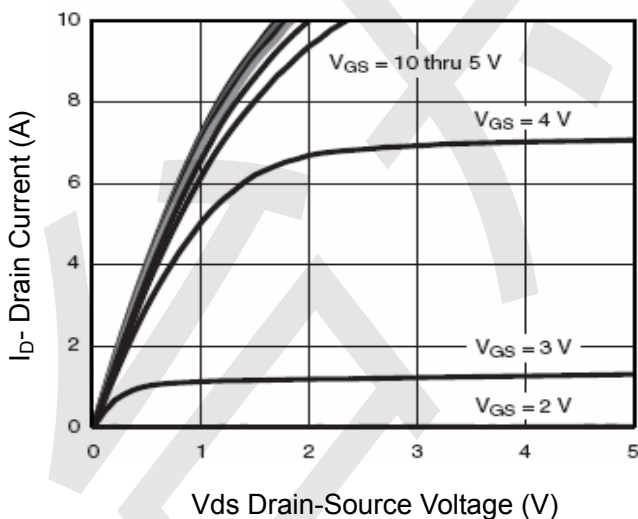


Figure 5 Output Characteristics

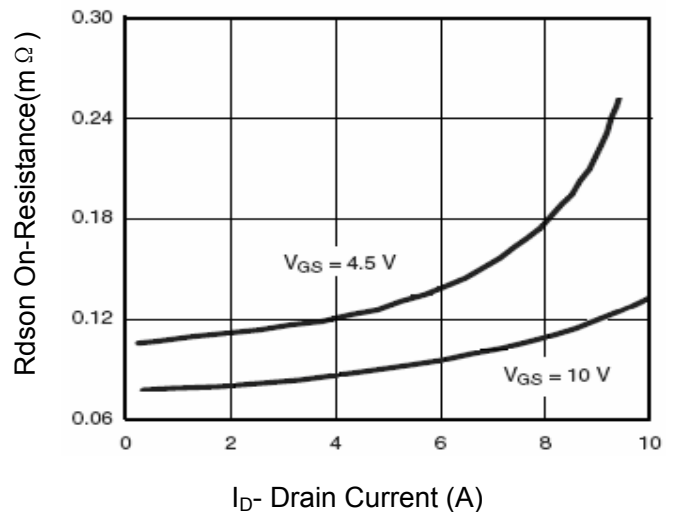


Figure 6 Drain-Source On-Resistance

Typical Electrical and Thermal Characteristics (Curves)

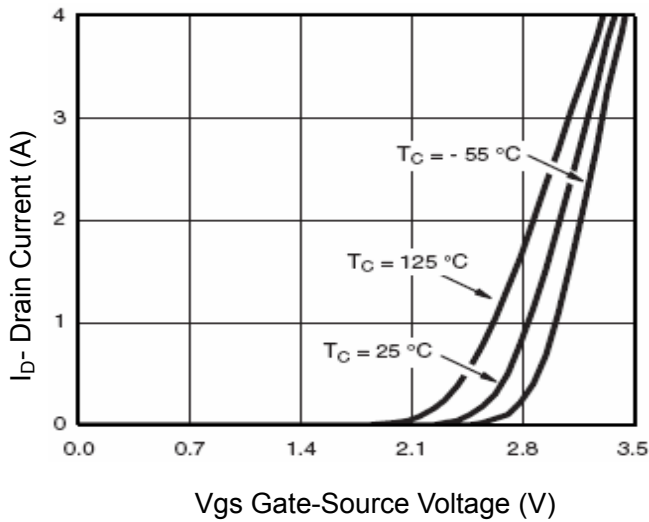


Figure 7 Transfer Characteristics

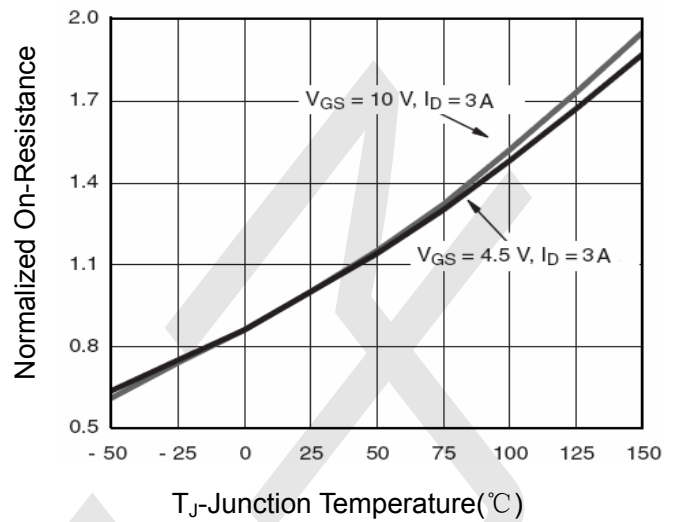


Figure 8 Drain-Source On-Resistance

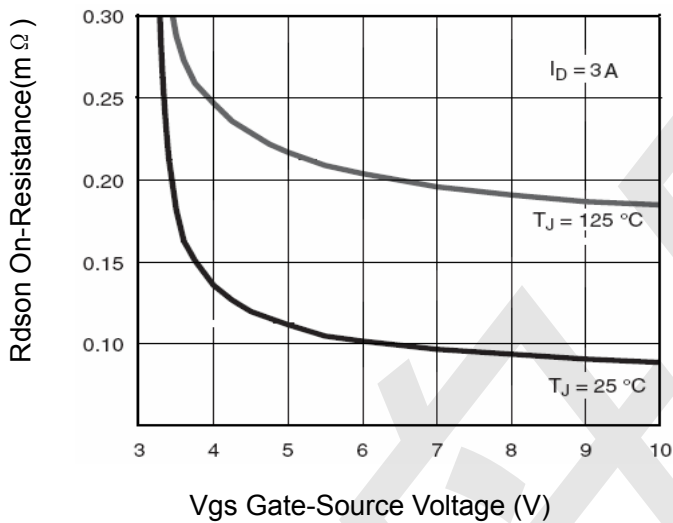


Figure 9 Rdson vs Vgs

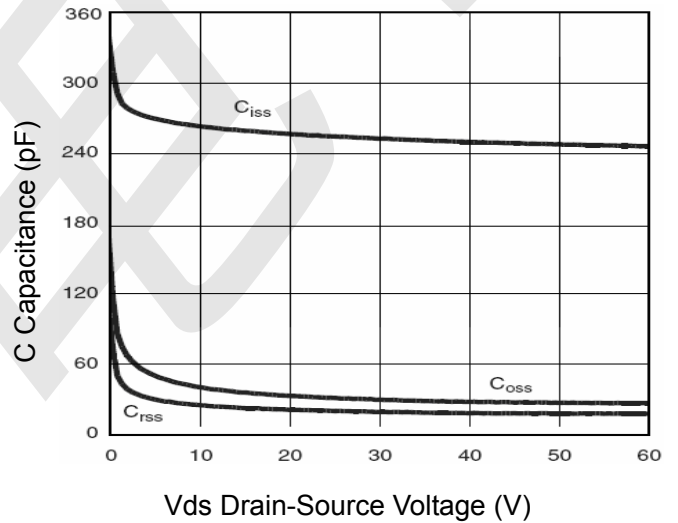


Figure 10 Capacitance vs Vds

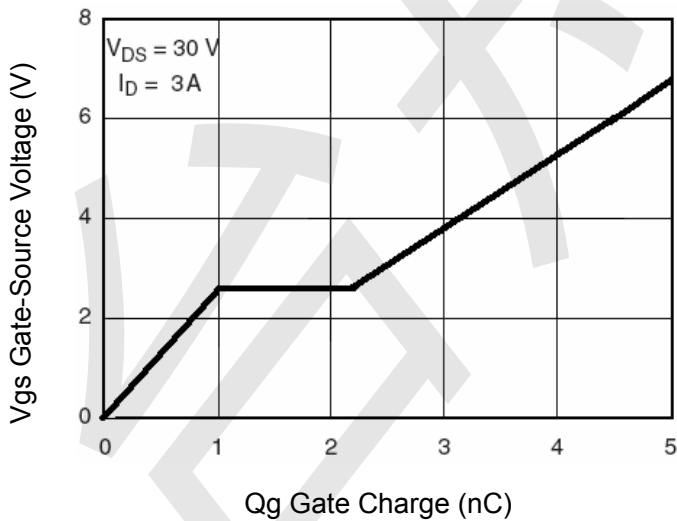


Figure 11 Gate Charge

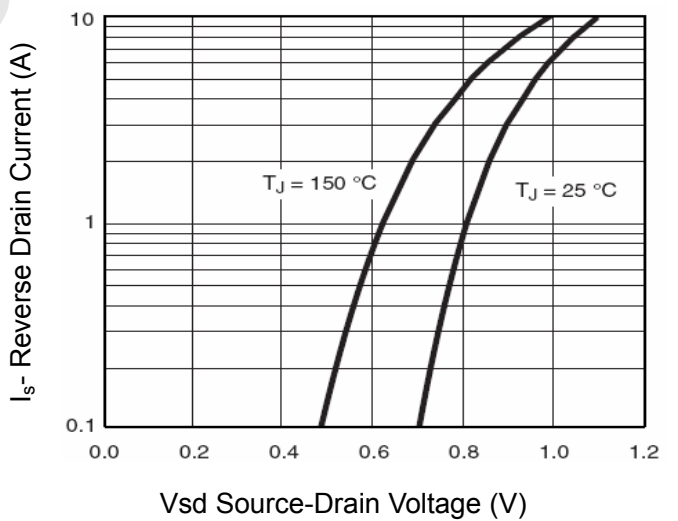


Figure 12 Source- Drain Diode Forward

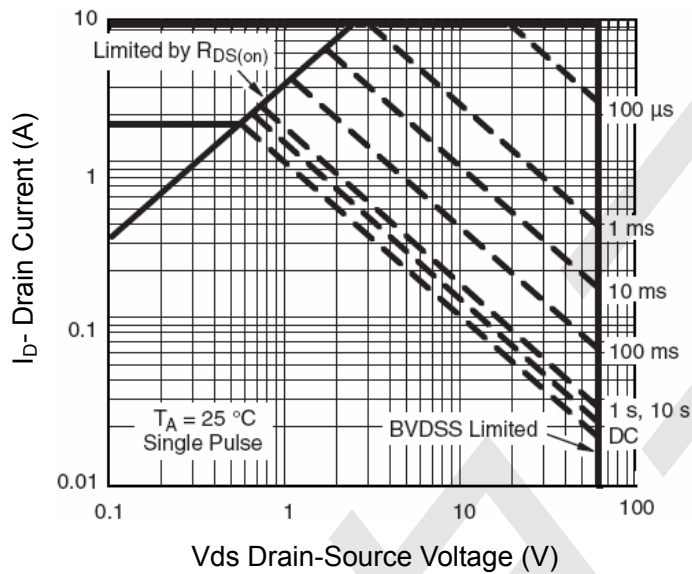


Figure 13 Safe Operation Area

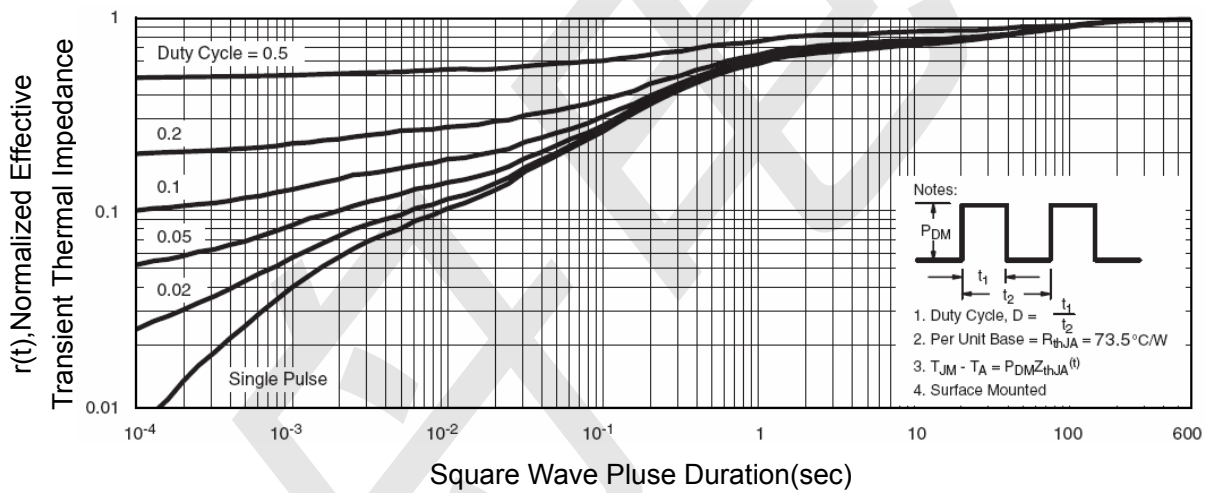
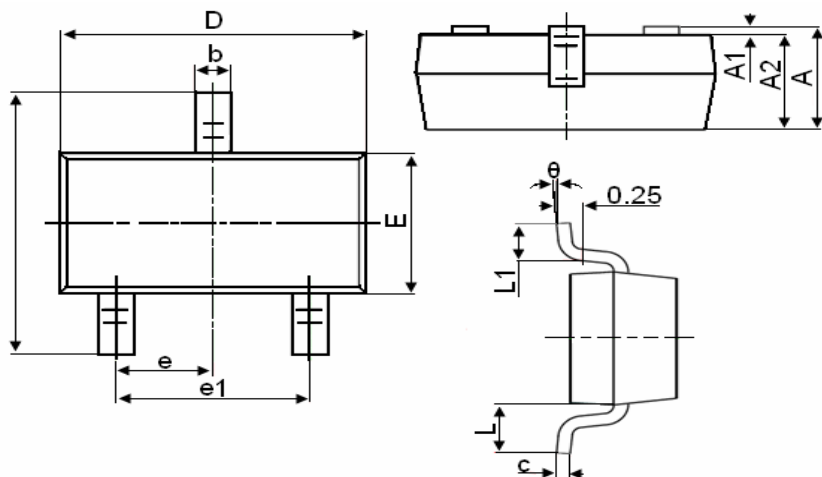


Figure 14 Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions (SOT-23)

www.sot23.com.tw



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°