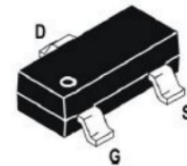
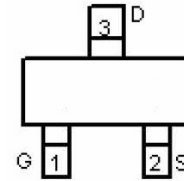
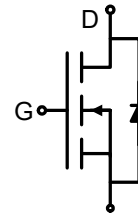


Features

- $V_{DS} = 20V, I_D = 4.5A$
 $R_{DS(ON)} < 38m\Omega @ V_{GS}=2.5V$
 $R_{DS(ON)} < 27m\Omega @ V_{GS}=4.5V$
- High power and current handling capability
- Lead free product is acquired
- Surface mount package



SOT-23-3L top view

Application

- Battery protection
- Load switch
- Power management

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

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 12	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	4.5	A
	$T_A = 70^\circ\text{C}$		3.6	
Drain Current-Pulsed (Note 1)		I_{DM}	13.5	A
Maximum Power Dissipation		P_D	1.25	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 150	$^\circ\text{C}$

Thermal Characteristic

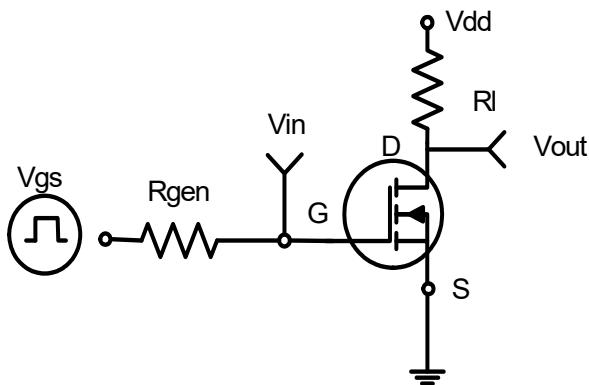
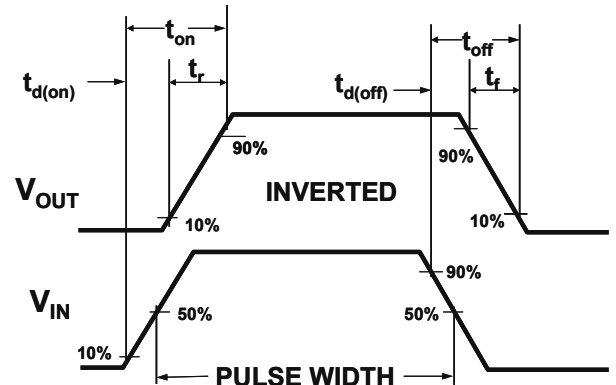
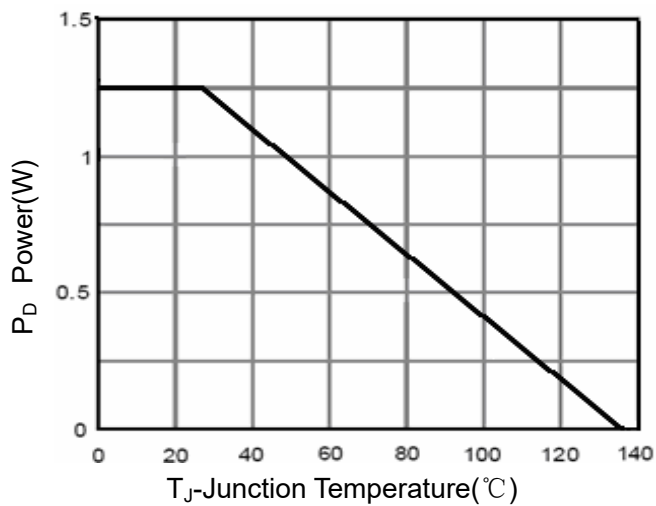
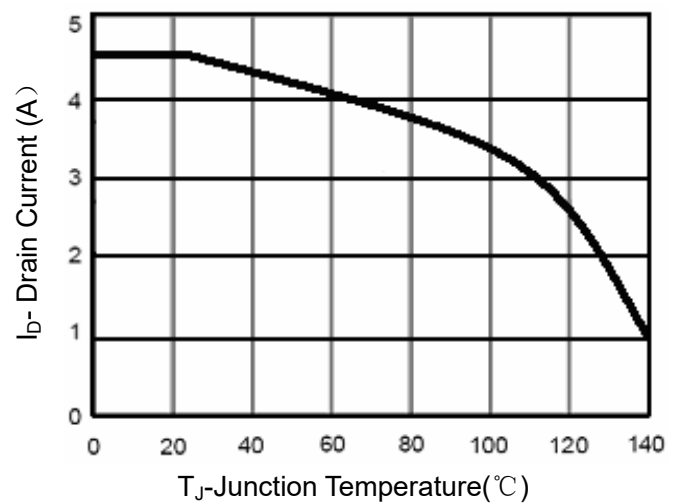
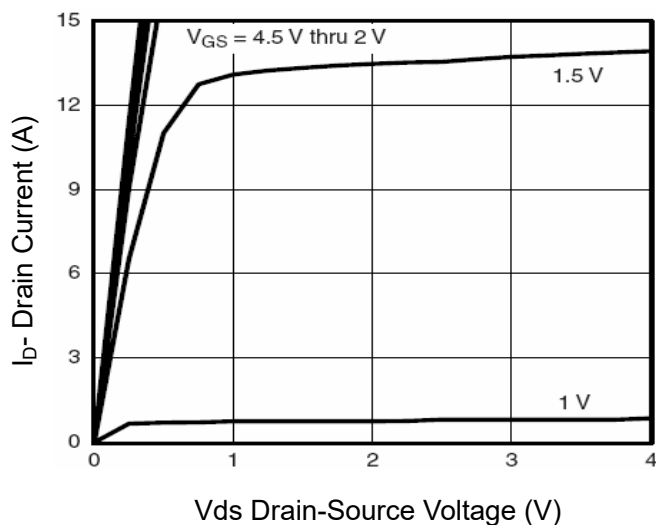
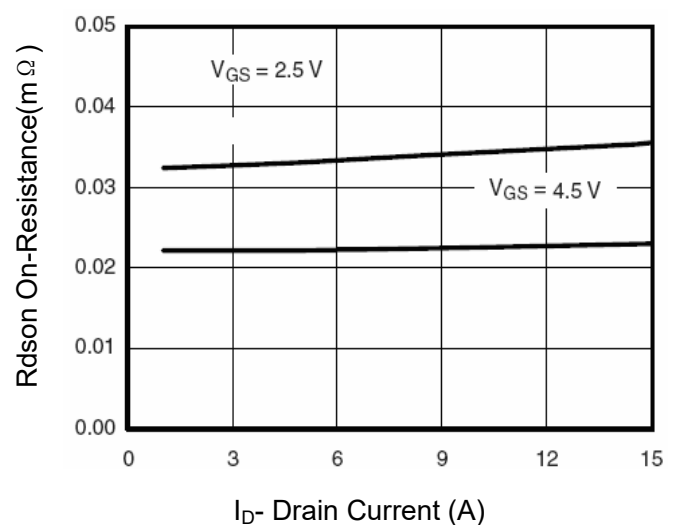
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	100	$^\circ\text{C/W}$
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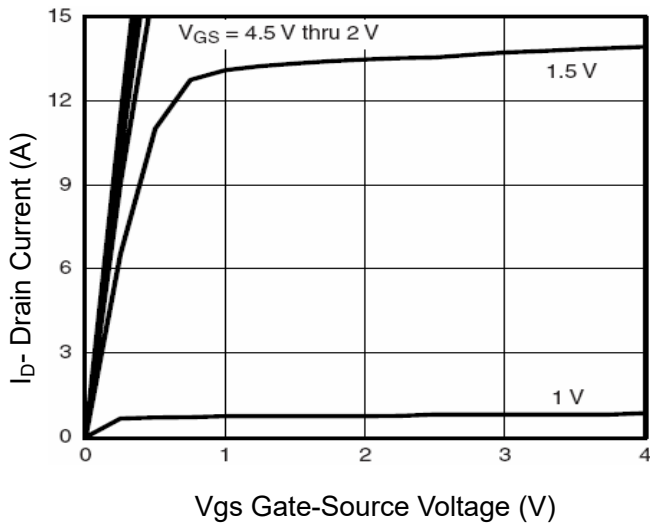
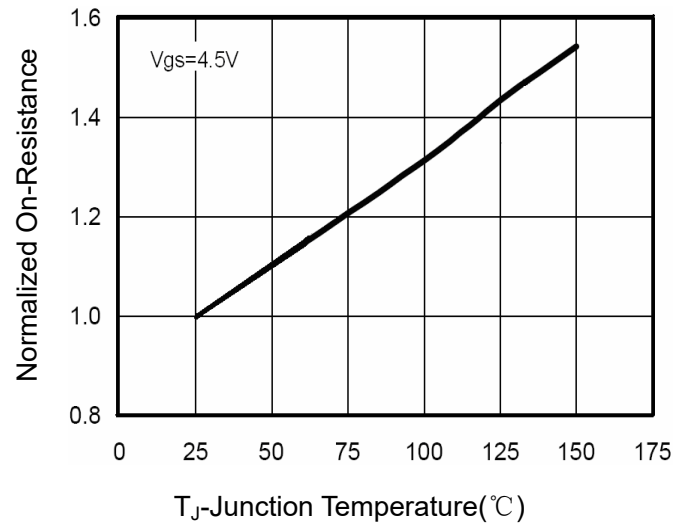
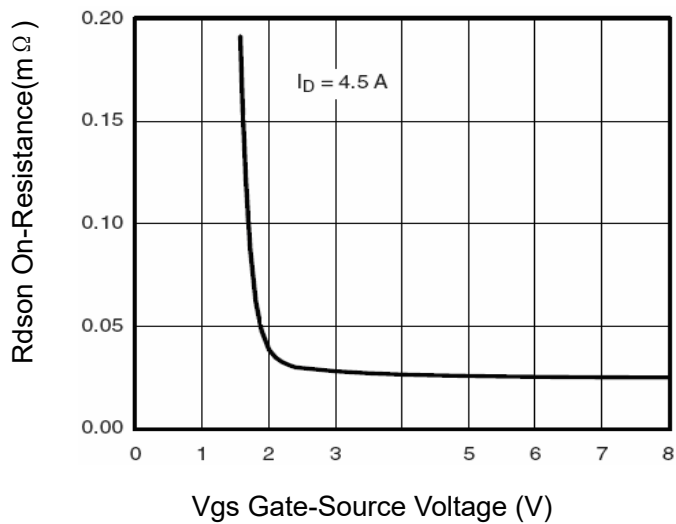
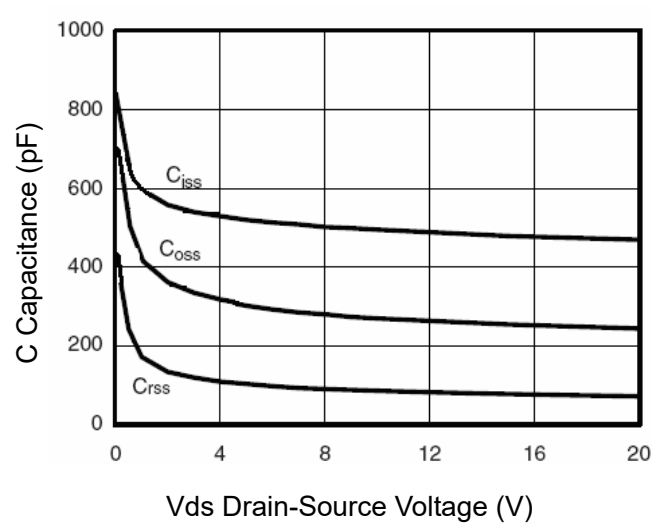
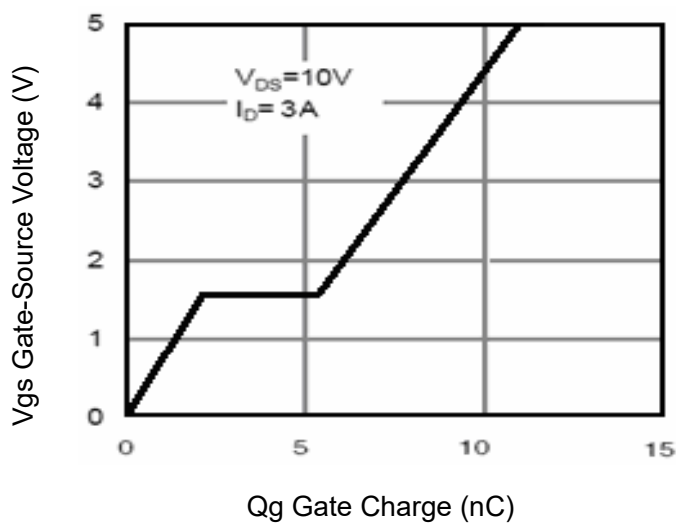
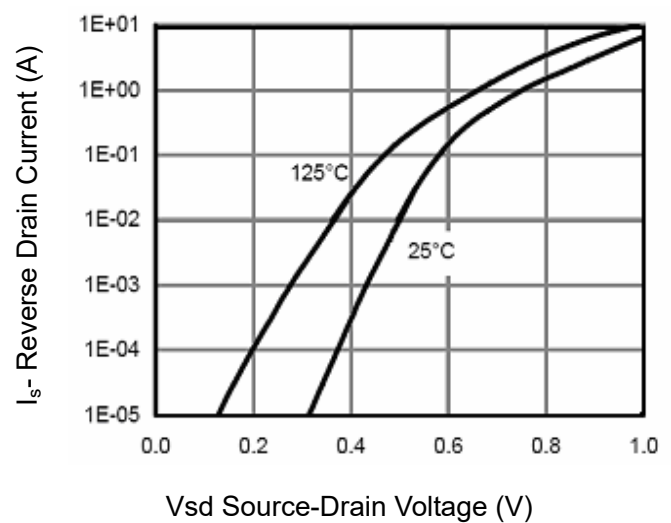
**Electrical Characteristics (T_A=25°C unless otherwise noted)**

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} =16V, 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	0.45	0.65	1	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =2.5V, I _D =3.5 A	-	27.8	38	mΩ
		V _{GS} =4.5V, I _D =4.5A	-	22	27	mΩ
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =4A	-	10	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{ISS}	V _{DS} =8V, V _{GS} =0V, F=1.0MHz	-	500	-	PF
Output Capacitance	C _{OSS}		-	300	-	PF
Reverse Transfer Capacitance	C _{RSS}		-	140	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =1A V _{GS} =4.5V, R _{GEN} =6Ω	-	20	40	nS
Turn-on Rise Time	t _r		-	18	40	nS
Turn-Off Delay Time	t _{d(off)}		-	60	108	nS
Turn-Off Fall Time	t _f		-	28	56	nS
Total Gate Charge	Q _g	V _{DS} =10V, I _D =3A, V _{GS} =4.5V	-	10	15	nC
Gate-Source Charge	Q _{gs}		-	2.3	-	nC
Gate-Drain Charge	Q _{gd}		-	2.9	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =1A	-	-	1.2	V
Diode Forward Current (Note 2)	I _S		-	-	1	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

**Typical Electrical and Thermal Characteristics****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**

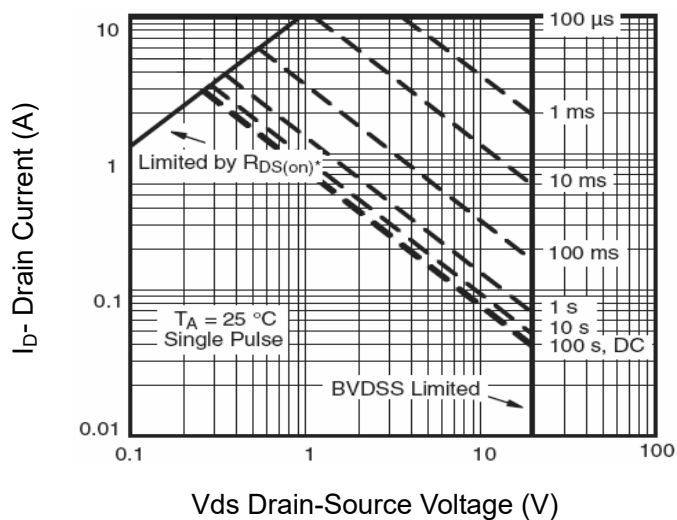


Figure 13 Safe Operation Area

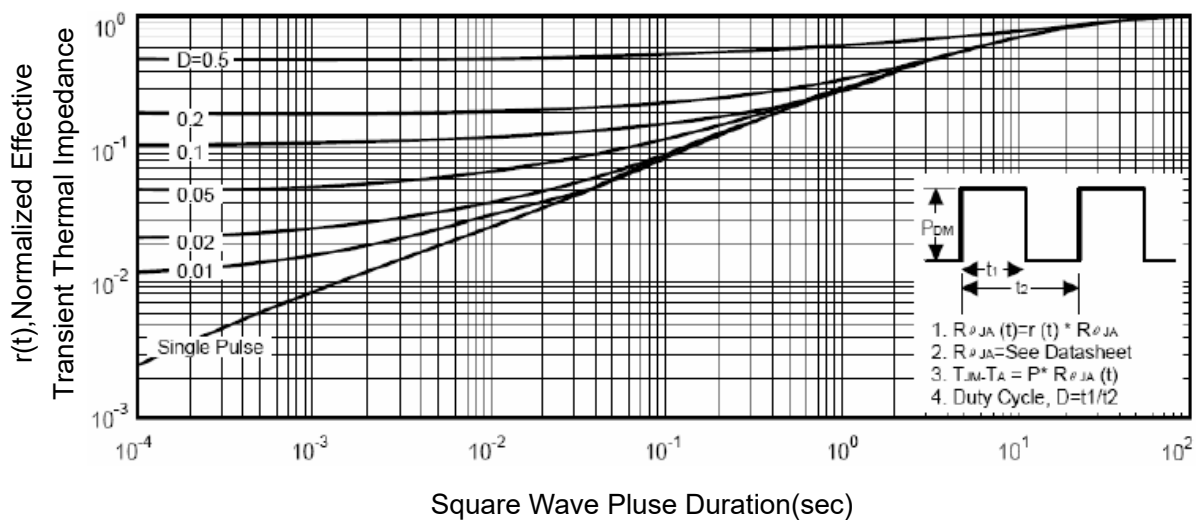


Figure 14 Normalized Maximum Transient Thermal Impedance

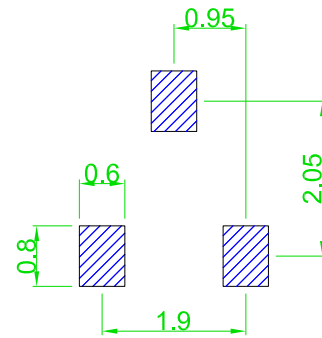
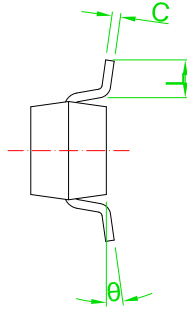
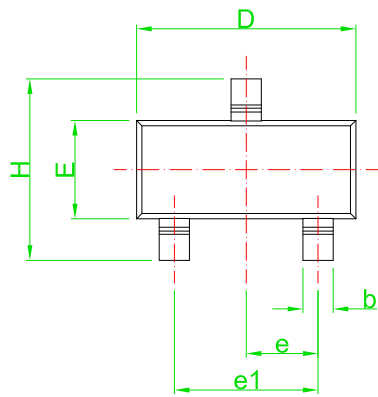
Ordering and Marking Information

Device	Marking	Package	Packing	Quantity
ASDM2300ZB	A0SHB	SOT23-3	Tape&Reel	3000/Reel

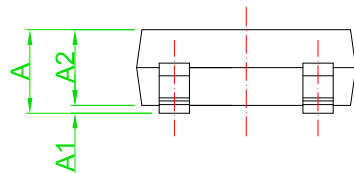
PACKAGE	MARKING
SOT23-3	A0SHB

Ordering Number		Package
Lead Free	Halogen Free	
ASDM2300-ZB-R	ASDM2300G-ZB-R	SOT23-3

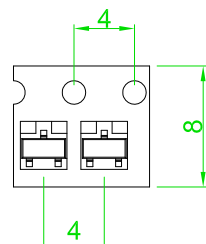
ASDM2300G-ZB- R 1 Packing Type 2 Package Type 3 Green Package	1 R:Tape Reel 2 ZB: SOT23 -3 3 blank : Lead Free G:Halogen Free
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Recommended Land Pattern



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.55	0.012	0.022
C	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
e	0.95 TYP		0.037 TYP	
e1	1.80	2.00	0.071	0.079
H	2.25	2.55	0.089	0.100
L	0.30	0.50	0.012	0.020
θ	0°	8°	0°	8°



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