



Features

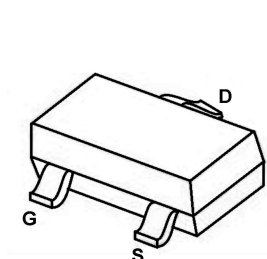
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- ESD Protection ESD>2K

Application

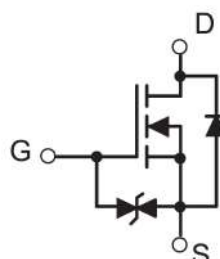
- Direct Logic-Level Interface: TTL/CMOS
- Battery Operated Systems
- Solid-State Relays

Product Summary

V_{DSS}	60	V
$R_{DS(on), Typ @ V_{GS}=10V}$	1.6	Ω
I_D	0.3	A



SOT-23



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		60	V
V_{GSS}	Gate-Source Voltage		± 20	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current		0.5	A
$I_{DM}^{①}$	Pulse Drain Current Tested	$T_A=25^\circ\text{C}$	1.2	A
I_D	Continuous Drain Current	$T_A=25^\circ\text{C}$	0.3	A
		$T_A=70^\circ\text{C}$	0.25	
P_D	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	0.36	W
		$T_A=70^\circ\text{C}$	0.23	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JA}^{②}$	Thermal Resistance-Junction to Ambient	Steady State	350	°C/W

Note ① : Max. current is limited by junction temperature.

Note ② : Surface Mounted on 1in² FR-4 board with 1oz.

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	-	-	1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0	1.5	2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±10	uA
R _{DS(ON)} ③	Drain-Source On-state Resistance	V _{GS} =10V, I _D =0.3A	-	1.6	2.5	Ω
		V _{GS} =4.5V, I _D =0.2A	-	1.9	3.0	
gfs	Forward Transconductance	V _{DS} =10V, I _D =0.2A	-	0.45	-	S
Dynamic Characteristics ④						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V, Freq.=1MHz	-	26.2	-	pF
C _{oss}	Output Capacitance		-	2.7	-	
C _{rss}	Reverse Transfer Capacitance		-	1.7	-	
td(ON)	Turn-on Dela y Time	V _{DD} =30V, I _D =0.3A, V _{GS} =10V, R _{GEN} =10Ω	-	1.0	-	nS
tr	Turn-on Rise Time		-	19.4	-	
td(OFF)	Turn-off Delay Time		-	23.2	-	
tf	Turn-off Fall Time		-	21	-	
Qg	Total Gate Charge	V _{DS} =30V, V _{GS} =4.5V, I _D =1A	-	0.9	-	nC
Qg	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _D =1A	-	1.7	-	
Qgs	Gate-Source Charge		-	0.4	-	
Qgd	Gate-Drain Charge		-	0.3	-	
Source-Drain Characteristics						
V _{SD} ③	Diode Forward Voltage	I _S =0.1A, V _{GS} =0V	0.4	0.8	1.1	V
trr	Reverse Recovery Time	I _F =0.1A,V _{GS} =0, dl _F /dt=100A/us	-	7.4	-	nS
Qrr	Reverse Recovery Charge		-	2.3	-	nC

Note ③ : Pulse test (pulse width≤300us, duty cycle≤2%).

Note ④ : Guaranteed by design, not subject to production testing.

Typical Characteristics

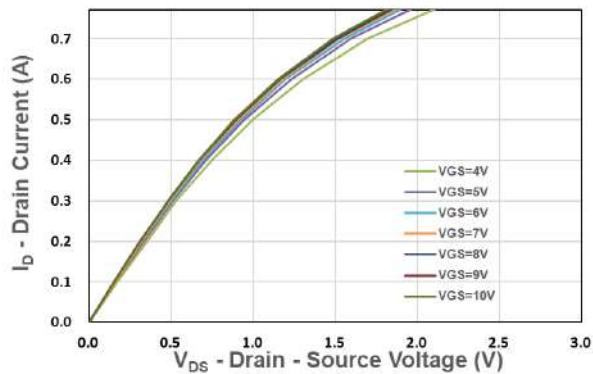


Figure 1. Output Characteristics

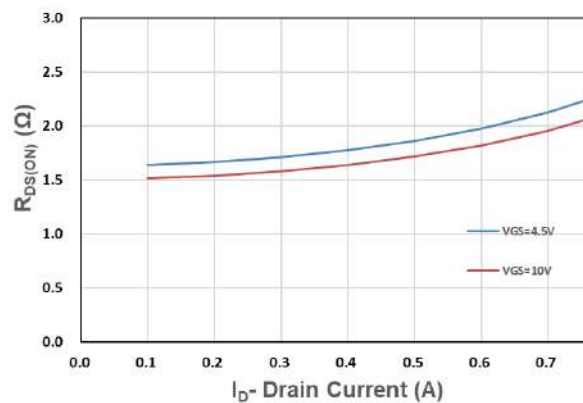


Figure 2. On-Resistance vs. ID

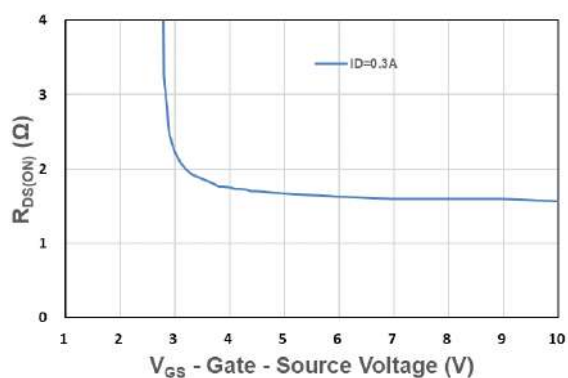


Figure 3. On-Resistance vs. VGS

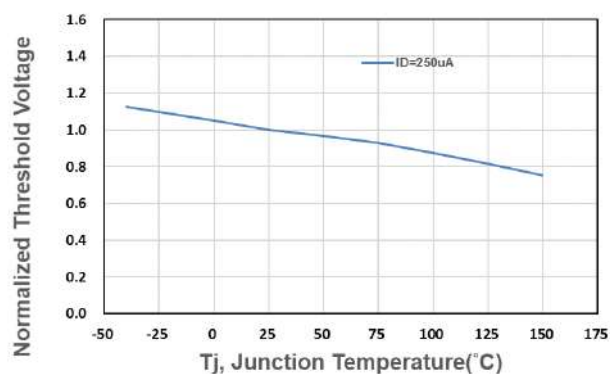


Figure 4. Gate Threshold Voltage

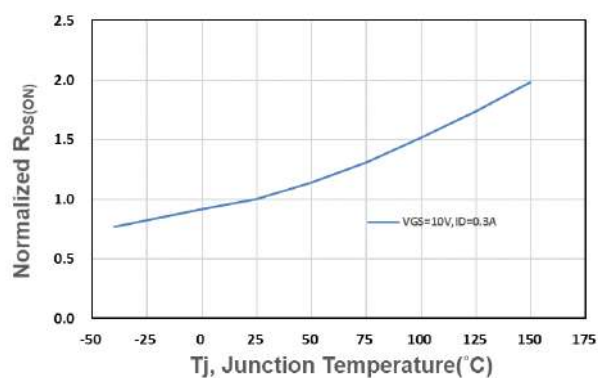


Figure 5. Drain-Source On Resistance

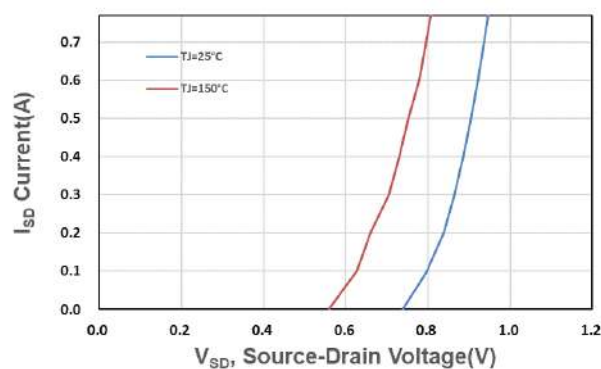
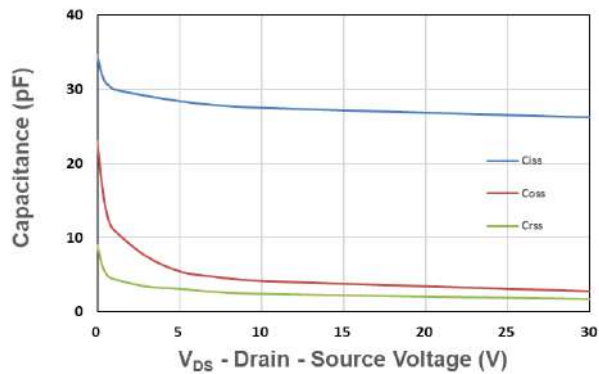
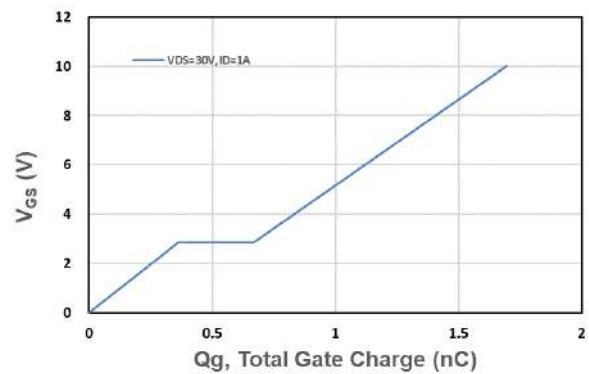
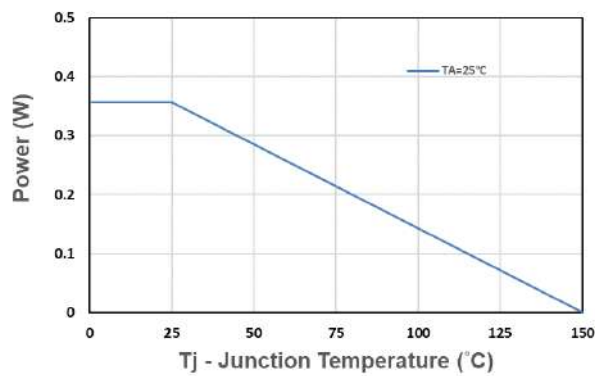
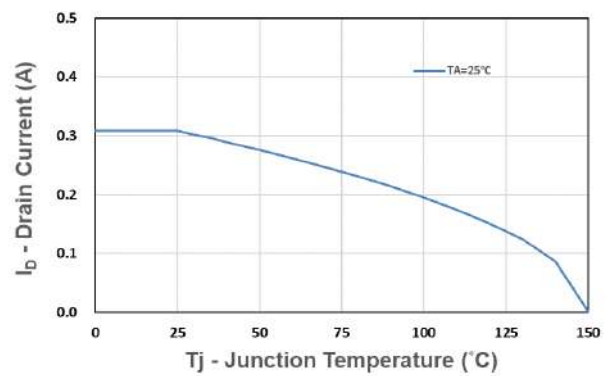
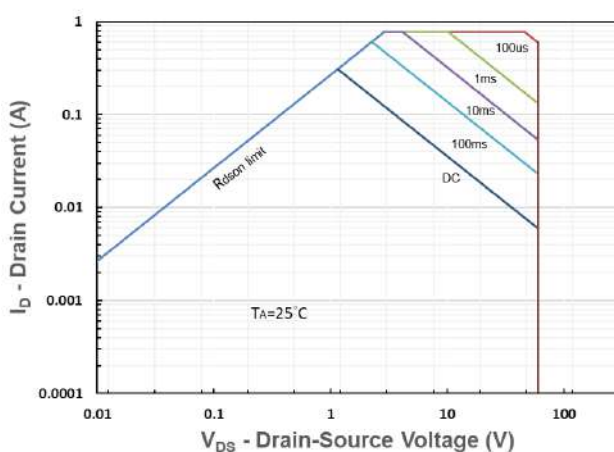
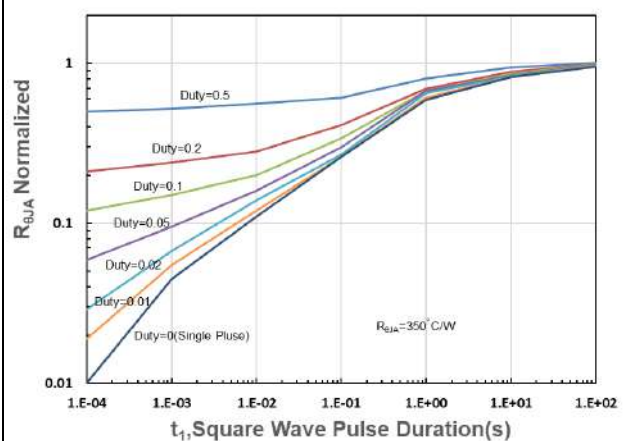
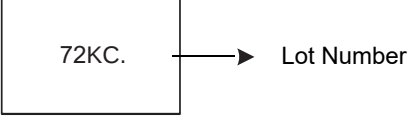


Figure 6. Source-Drain Diode Forward

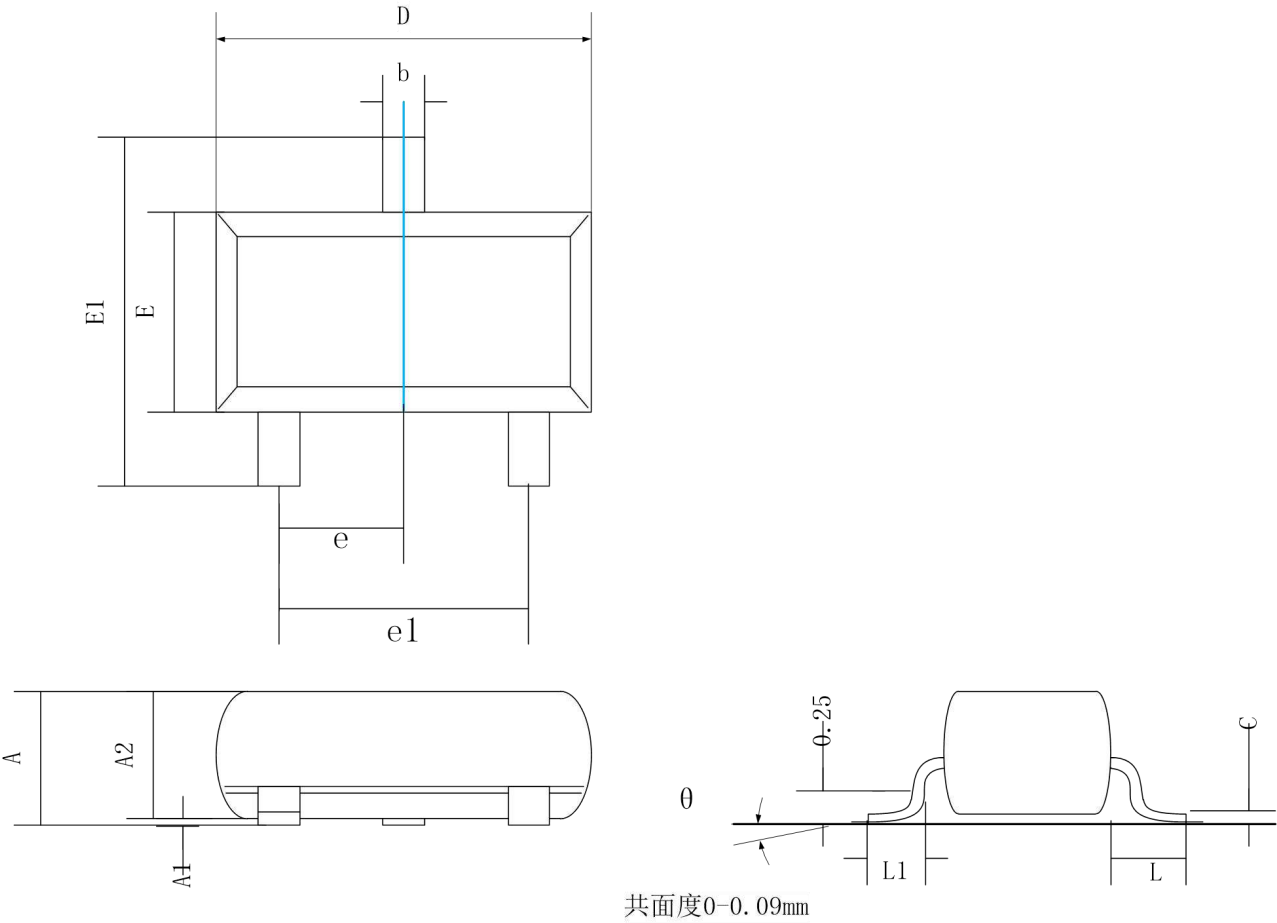

Figure 7. Capacitance

Figure 8. Gate Charge Characteristics

Figure 9. Power Dissipation

Figure 10. Drain Current

Figure 11. Safe Operating Area

Figure 12. $R_{\theta JA}$ Transient Thermal Impedance

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM7002EZA-R	72KC.	SOT-23	Tape&Reel	3000/Reel

PACKAGE	MARKING
SOT-23	

SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50
θ	0°	8°

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