



## Features

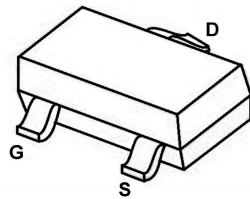
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- ESD Protection ESD>2K

## Application

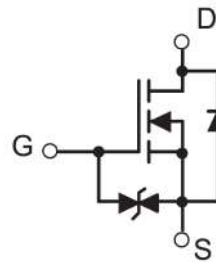
- Direct Logic-Level Interface: TTL/CMOS
- Battery Operated Systems
- Solid-State Relays

## Product Summary

$V_{DSS}$	60	V
$R_{DS(on), Typ @ V_{GS}=10 V}$	1.6	$\Omega$
$I_D$	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		$\pm 20$	
$T_J$	Maximum Junction Temperature		150	$^{\circ}C$
$T_{STG}$	Storage Temperature Range		-55 to 150	$^{\circ}C$
$I_S$	Diode Continuous Forward Current		0.3	A
$I_{DM}^{①}$	Pulse Drain Current Tested	$T_A=25^{\circ}C$	1.2	A
$I_D$	Continuous Drain Current	$T_A=25^{\circ}C$	0.3	A
		$T_A=70^{\circ}C$	0.25	
$P_D$	Maximum Power Dissipation	$T_A=25^{\circ}C$	0.36	W
		$T_A=70^{\circ}C$	0.23	

## Thermal Characteristics

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

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

Note ② : Surface Mounted on 1in<sup>2</sup> FR-4 board with 1oz.

Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
<b>Static Electrical Characteristics</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	60	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V	-	-	1	uA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	1.0	1.5	2.5	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±10	uA
R <sub>DS(ON)</sub> ③	Drain-Source On-state Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =0.3A	-	1.6	2.5	Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.2A	-	1.9	3.0	
gfs	Forward Transconductance	V <sub>DS</sub> =10V, I <sub>D</sub> =0.2A	-	0.45	-	S
<b>Dynamic Characteristics</b> ④						
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =30V, Freq.=1MHz	-	26.2	-	pF
C <sub>oss</sub>	Output Capacitance		-	2.7	-	
C <sub>rss</sub>	Reverse Transfer Capacitance		-	1.7	-	
t <sub>d(ON)</sub>	Turn-on Delay Time	V <sub>DD</sub> =30V, I <sub>D</sub> =0.3A, V <sub>GS</sub> =10V, R <sub>GEN</sub> =10Ω	-	1.0	-	nS
t <sub>r</sub>	Turn-on Rise Time		-	19.4	-	
t <sub>d(OFF)</sub>	Turn-off Delay Time		-	23.2	-	
t <sub>f</sub>	Turn-off Fall Time		-	21	-	
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =30V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =1A	-	0.9	-	nC
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =1A	-	1.7	-	
Q <sub>gs</sub>	Gate-Source Charge		-	0.4	-	
Q <sub>gd</sub>	Gate-Drain Charge		-	0.3	-	
<b>Source-Drain Characteristics</b>						
V <sub>SD</sub> ③	Diode Forward Voltage	I <sub>S</sub> =0.1A, V <sub>GS</sub> =0V	0.4	0.8	1.1	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =0.1A, V <sub>GS</sub> =0, dI <sub>F</sub> /dt=100A/us	-	7.4	-	nS
Q <sub>rr</sub>	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

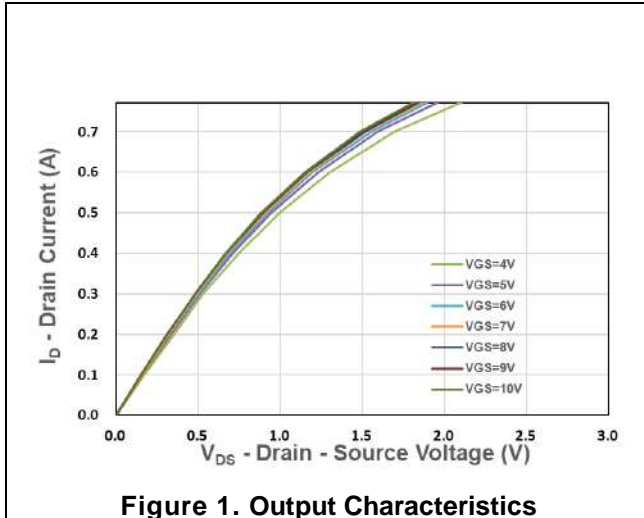


Figure 1. Output Characteristics

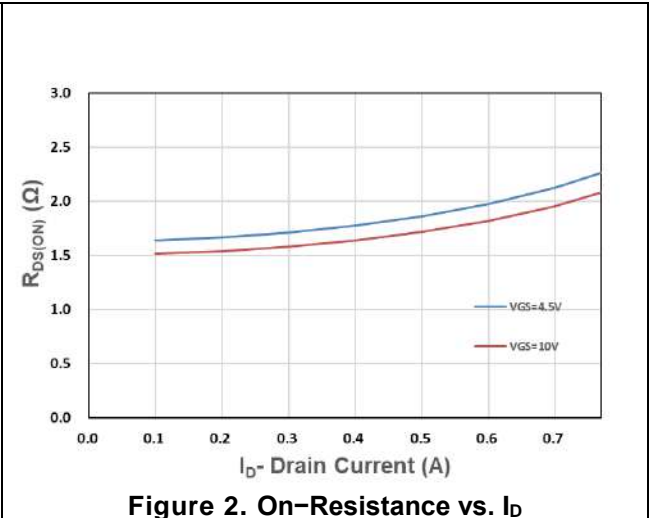


Figure 2. On-Resistance vs.  $I_D$

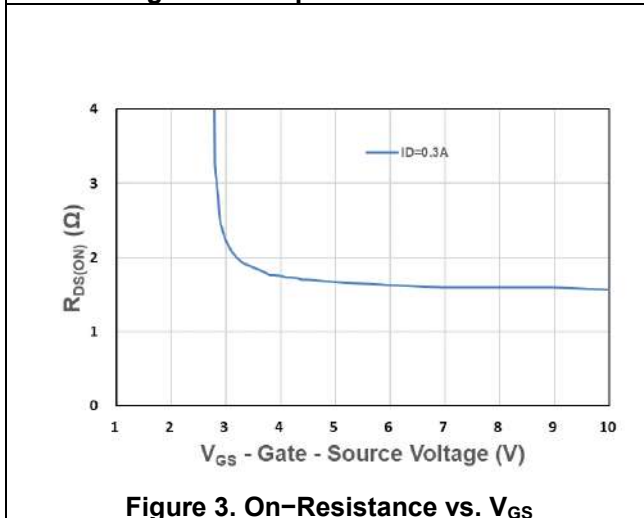


Figure 3. On-Resistance vs.  $V_{GS}$

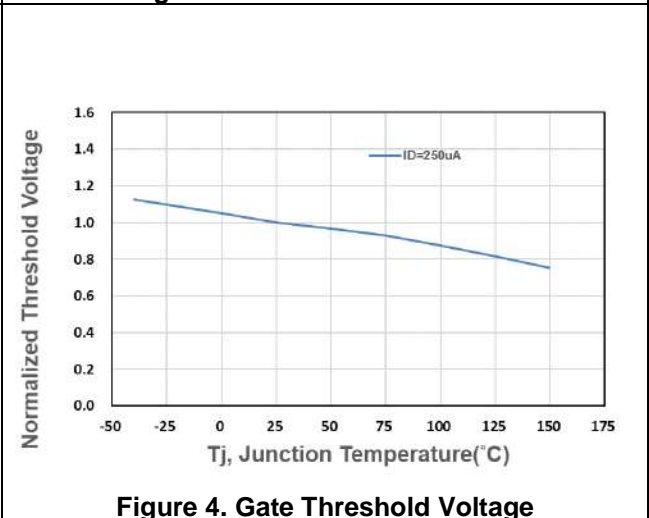


Figure 4. Gate Threshold Voltage

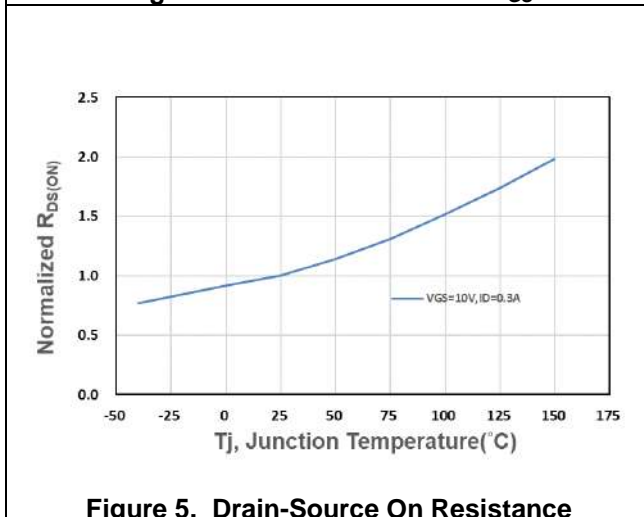


Figure 5. Drain-Source On Resistance

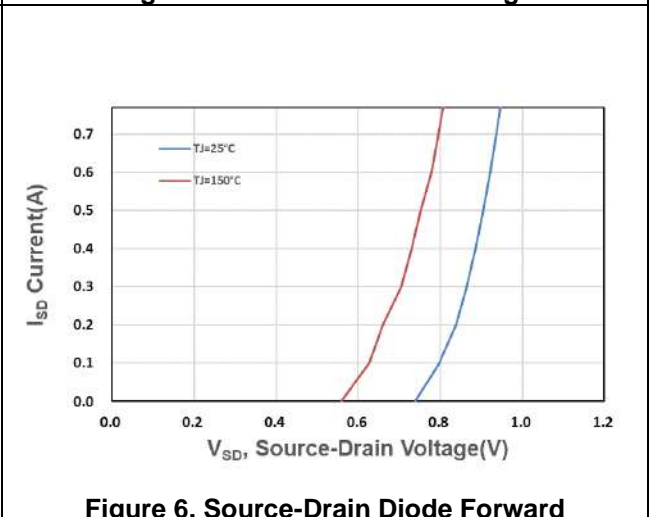
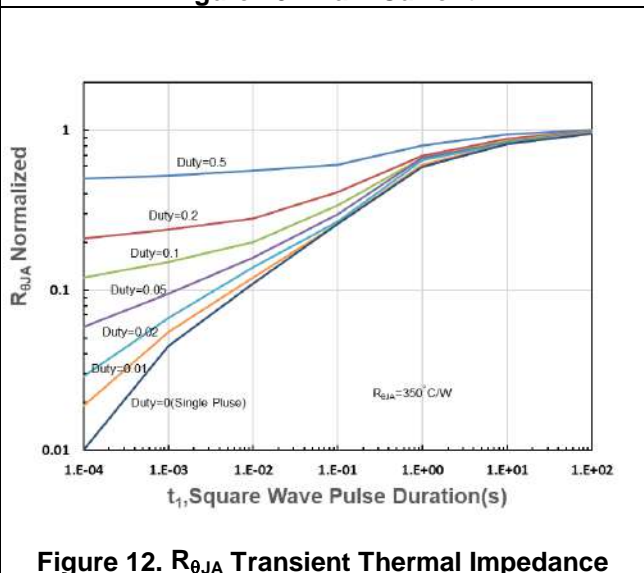
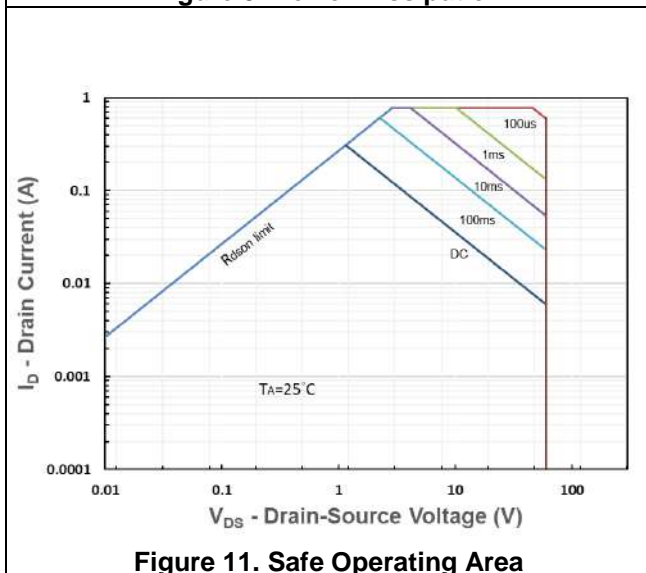
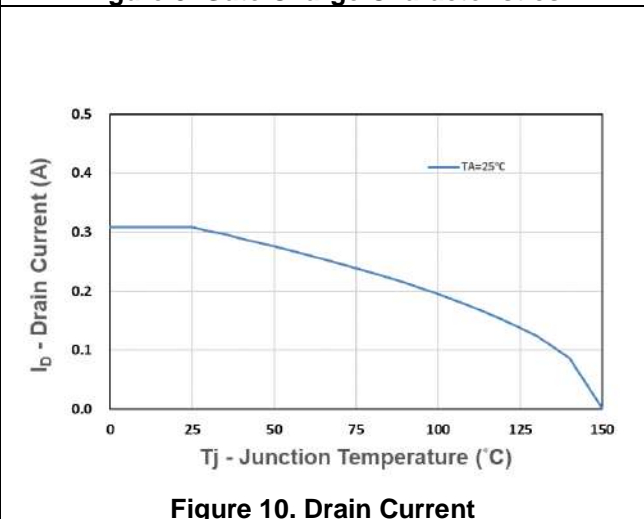
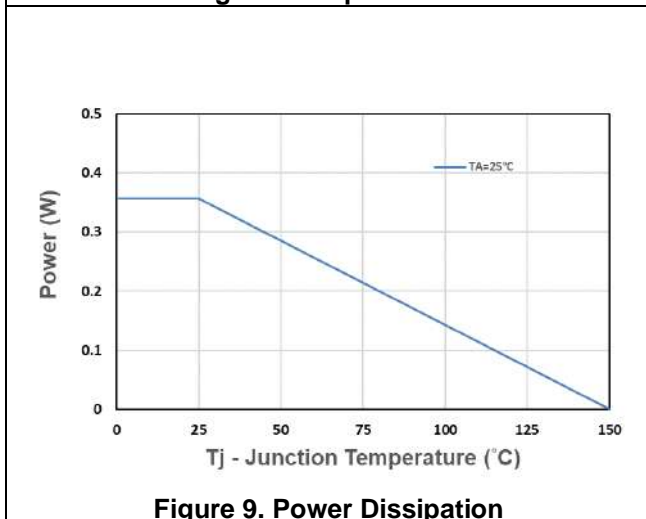
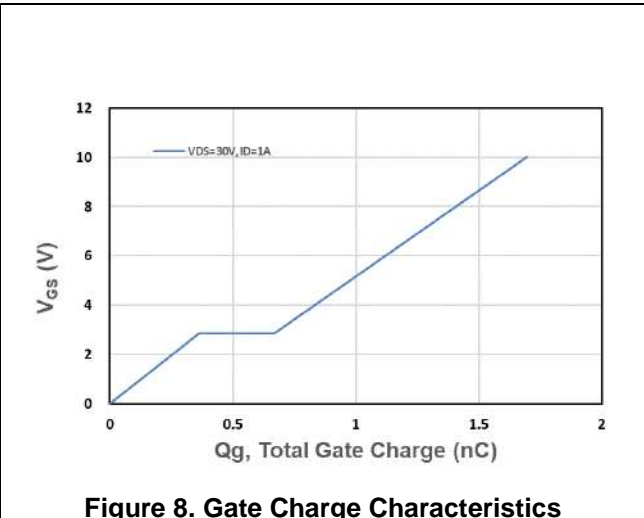
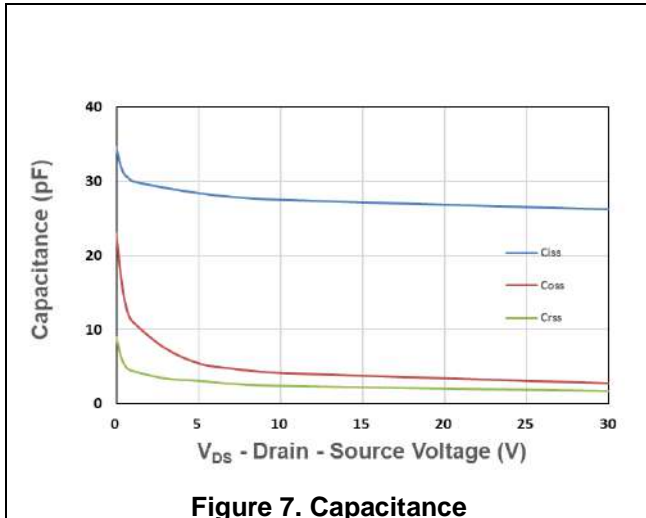


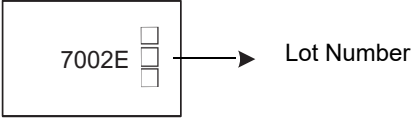
Figure 6. Source-Drain Diode Forward





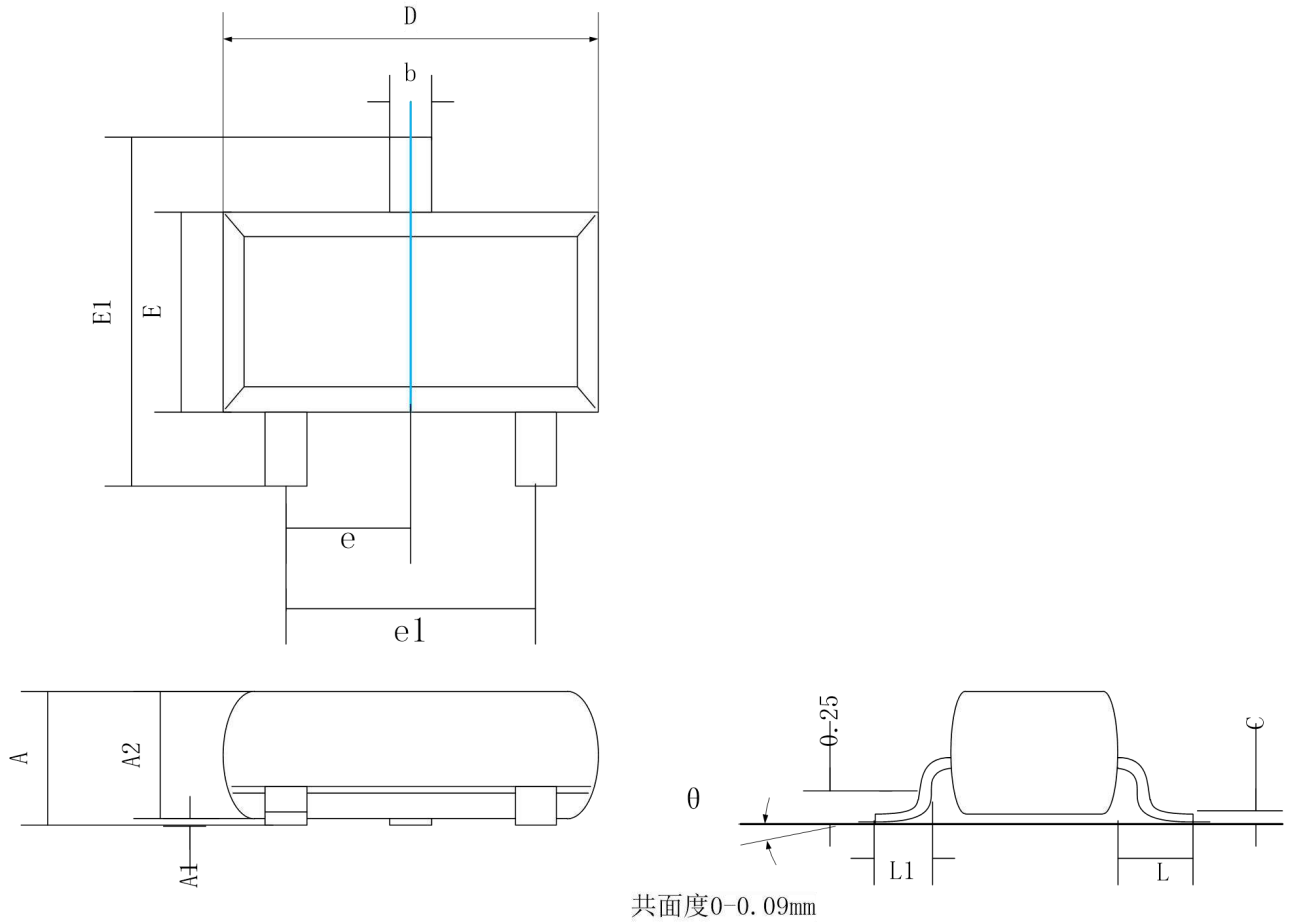
### Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM7002EZA-R	7002E	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
$\theta$	0°	8°

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