


**General Features**

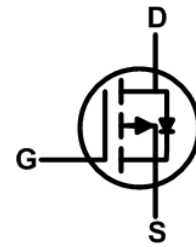
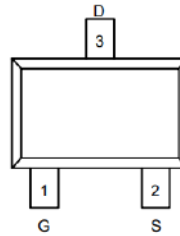
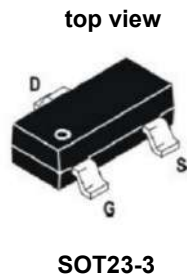
- $R_{DS(ON)} < 20m\Omega @ V_{GS} = -10V$   
 $R_{DS(ON)} < 33m\Omega @ V_{GS} = -4.5V$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

**Applications**

- PWM Applications
- Load Switch
- Power Management

**Product Summary**

VDS	-30	V
RDS(on),max.@ VGS=-10 V	20	mΩ
ID	-9	A


**P-channel**
**Absolute Maximum Ratings** ( $T_C=25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Max.	Units
$V_{DSS}$	Drain-Source Voltage	-30	V
$V_{GSS}$	Gate-Source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current	$T_C = 25^\circ\text{C}$	-9
		$T_C = 100^\circ\text{C}$	-5
$I_{DM}$	Pulsed Drain Current <small>note1</small>	-15	A
$P_D$	Power Dissipation	$T_C = 25^\circ\text{C}$	1.8
$R_{\theta JC}$	Thermal Resistance, Junction to Ambient	6.9	$^\circ\text{C}/\text{W}$
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** ( $T_c=25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-30	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V,$	-	-	-1	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 12V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.6	-2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS} = -10.0V, I_D = -5A$	-	16	20	m $\Omega$
		$V_{GS} = -4.5V, I_D = -3.0A$	-	23	33	
$g_{FS}$	Forward Transconductance	$V_{DS} = -5V, I_D = -5.0A$	20	-	-	S
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$	-	1300	-	pF
$C_{oss}$	Output Capacitance		-	240	-	pF
$C_{riss}$	Reverse Transfer Capacitance		-	95	-	pF
$Q_g$	Total Gate Charge	$V_{DS} = -15V, I_D = -5A,$ $V_{GS} = -1.0V$	-	20	50	nC
$Q_{gs}$	Gate-Source Charge		-	4	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	6	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{DS} = -15V, I_D = -4A,$ $R_{GEN}=2.5\Omega, V_{GS}=-1.0V$	-	11	-	ns
$t_r$	Turn-on Rise Time		-	18	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	30	-	ns
$t_f$	Turn-off Fall Time		-	10	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	-7	A
$I_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-10	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S = -5A$	-	-	-1.2	V

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

 2. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$

**Typical Performance Characteristics**

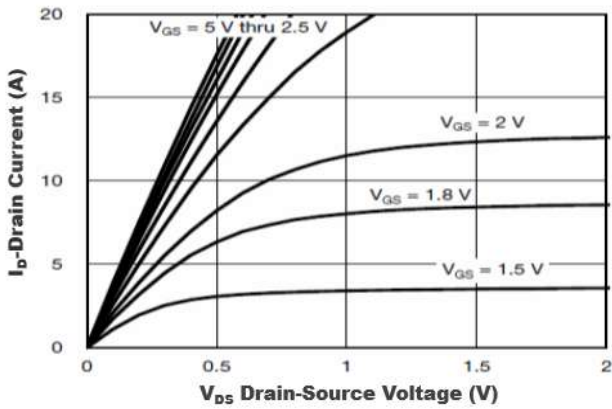


Figure1. Output Characteristics

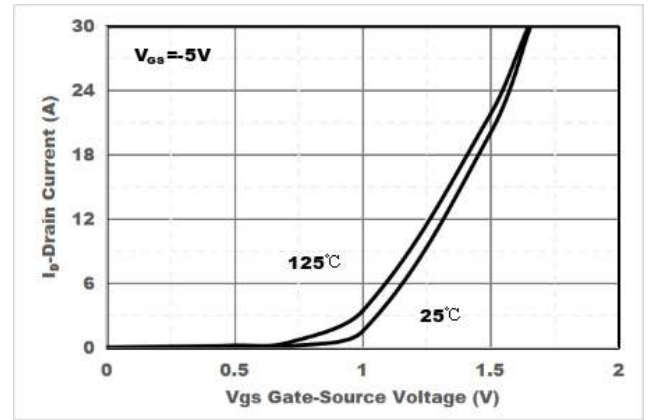


Figure2. Transfer Characteristics

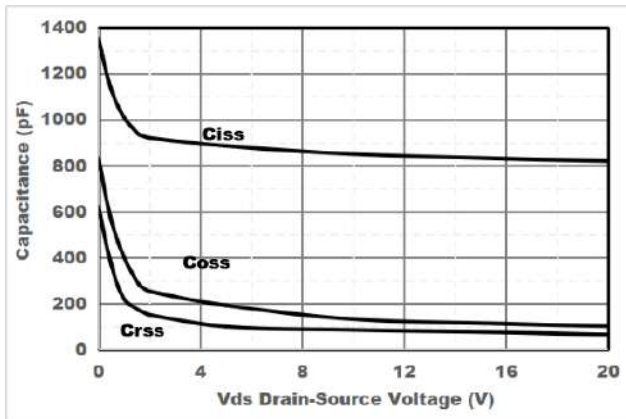


Figure3. Capacitance Characteristics

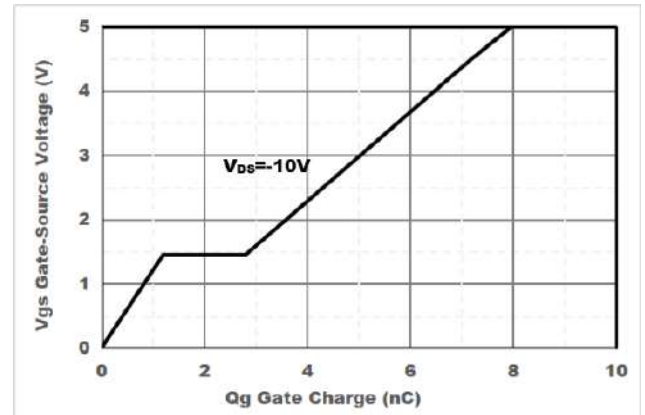


Figure4. Gate Charge

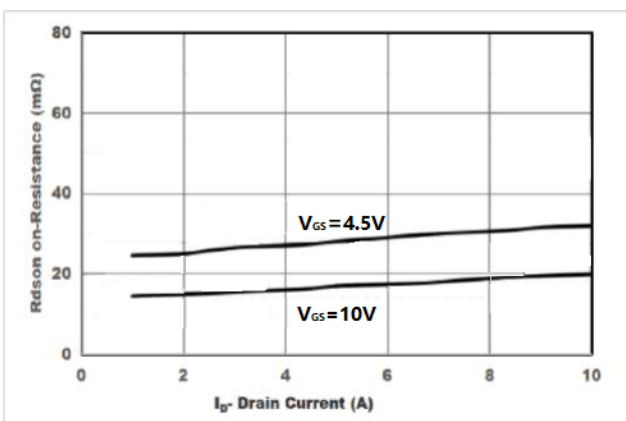


Figure5. Drain-Source on Resistance

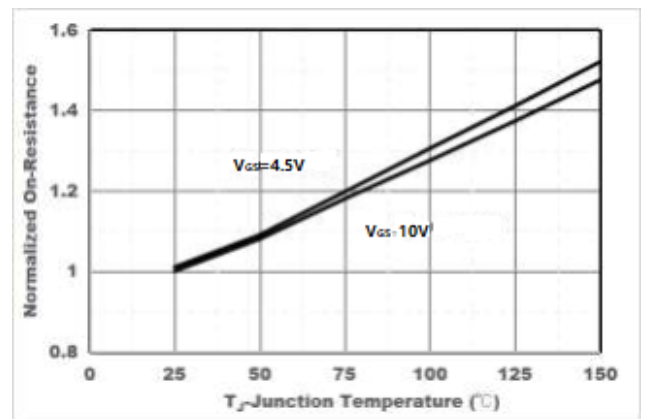


Figure6. Drain-Source on Resistance

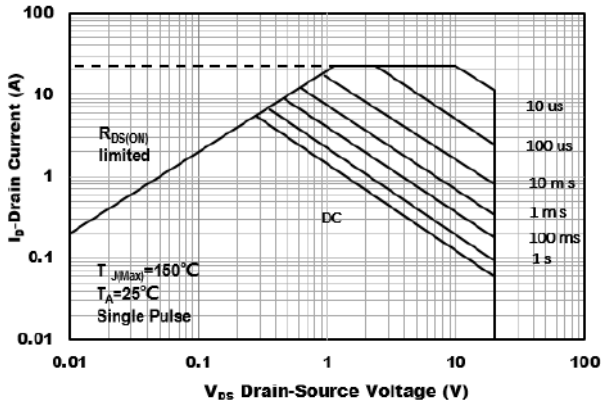


Figure7. Safe Operation Area

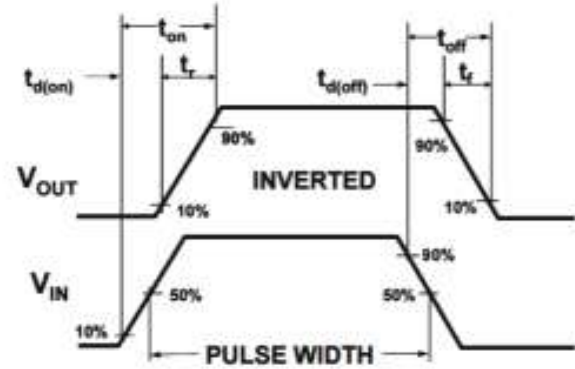
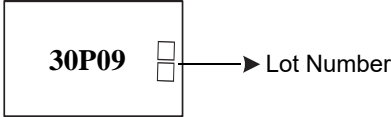
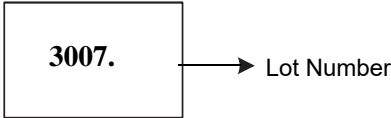


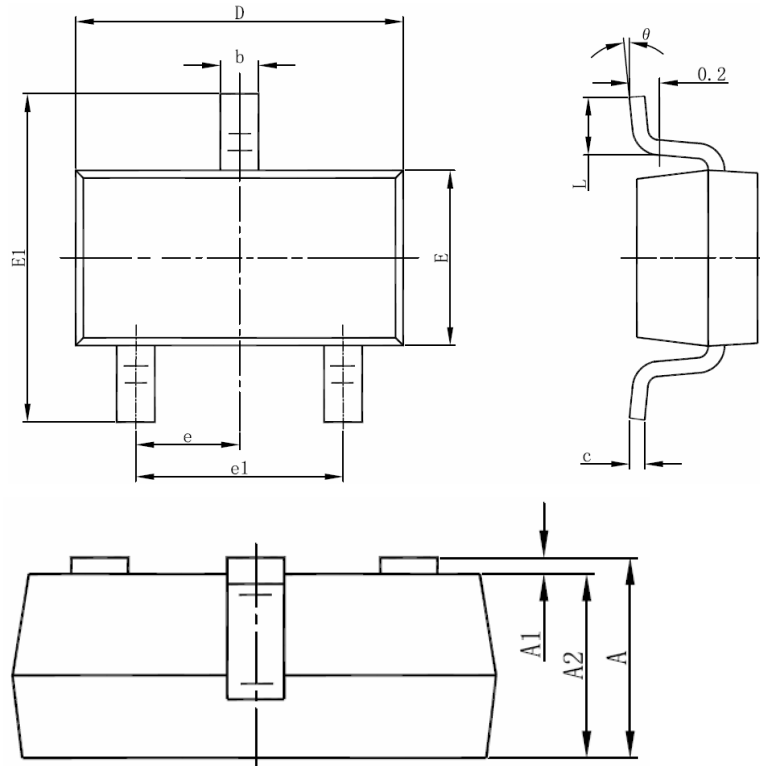
Figure8. Switching wave

## Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30P09ZB-R	30P09/XX	SOT23-3	Tape&Reel	3000/Reel
ASDM30P09ZB-R	3007.	SOT23-3	Tape&Reel	3000/Reel

PACKAGE	MARKING
SOT23-3	 <p>30P09 → Lot Number</p>
SOT23-3	 <p>3007. → Lot Number</p>

## SOT-23-3L PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°

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