

## POWER MOSFET WAFER DATASHEET

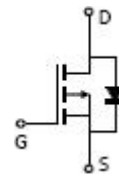
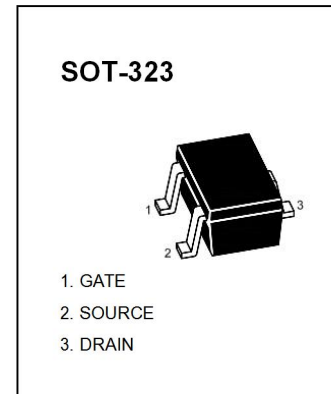
### Feature

- 60V P-Channel MOSFET High Dense Design.
- $R_{DS(ON)} = 4.0\Omega(\text{typ.}) @ V_{GS} = -10V$
- Reliable and Rugged
- ESD Protected.

### Applications

- Load Switch

MARKING: PD



## Electrical Characteristics (Wafer Type)

### 1. Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit
$V_{DSS}$	Drain-Source Voltage	-60	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	
$I_D$	Continue Drain Current	-0.18	A
$I_{DM}^a$	Pulsed Drain Current	-0.45	
$I_S$	Diode Continuous Forward Current	-0.1	A
$T_J$	Maximum Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150	
$R_{\theta JA}^b$	Thermal Resistance-Junction to Ambient (SOT23)	400	$^\circ\text{C/W}$

## Static Electrical Characteristics (T<sub>A</sub>=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	SKA60P4K0AE			Unit
			Min.	Typ.	Max.	
<b>Static Characteristics<sup>c</sup></b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>DS</sub> =-250μA	-60	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-48V, V <sub>GS</sub> =0V	-	-	1	μA
		T <sub>J</sub> =85°C	-	-	30	
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =-250μA	-1.1	-1.8	-2.5	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±10	μA
R <sub>DS(ON)</sub>	Drain-Source On-state Resistance	V <sub>GS</sub> =-10V, I <sub>DS</sub> =-100mA	-	4.0	6.0	Ω
		V <sub>GS</sub> =-4.5V, I <sub>DS</sub> =-100mA	-	4.5	7.0	
V <sub>SD</sub>	Diode Forward Voltage	I <sub>SD</sub> =-100mA, V <sub>GS</sub> =0V	-	-0.85	-1.1	V

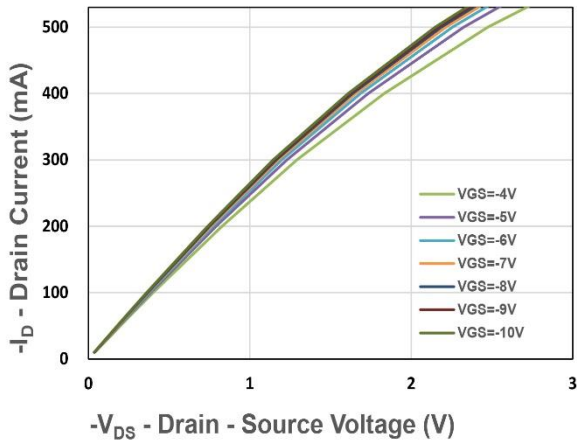
Note:

a : Current limit by max. junction temperature.

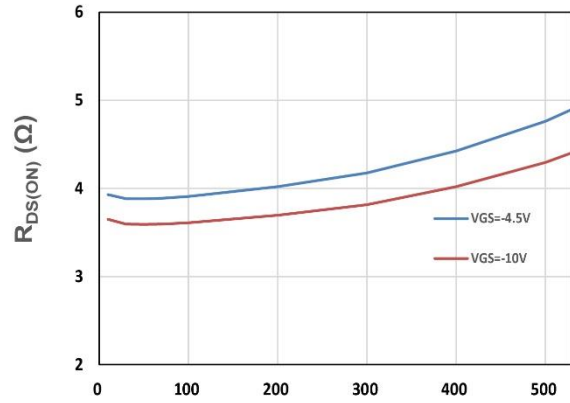
b : The R<sub>θJA</sub> is the sum of the thermal impedance from junction to ambient and depend on package type.

c : MOS static characteristics test by wafer level(CP).

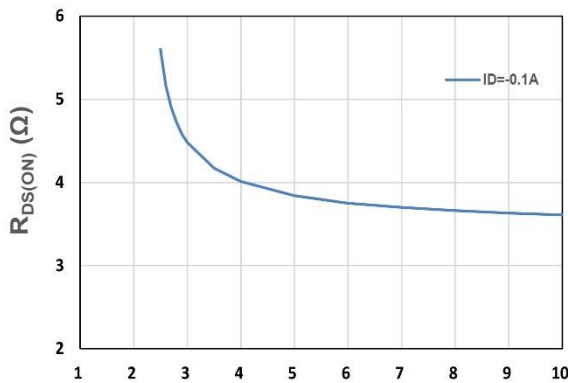
## P-Channel Typical Characteristics



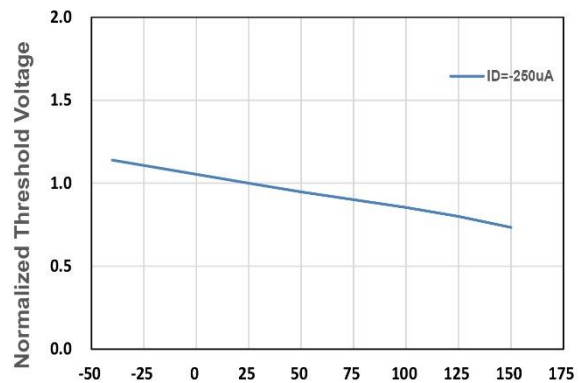
-V<sub>DS</sub> - Drain - Source Voltage (V)  
Figure 1. Output Characteristics



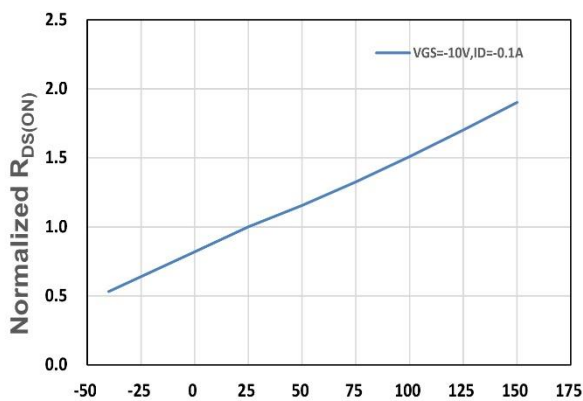
-ID - Drain Current (mA)  
Figure 2. On-Resistance vs. ID



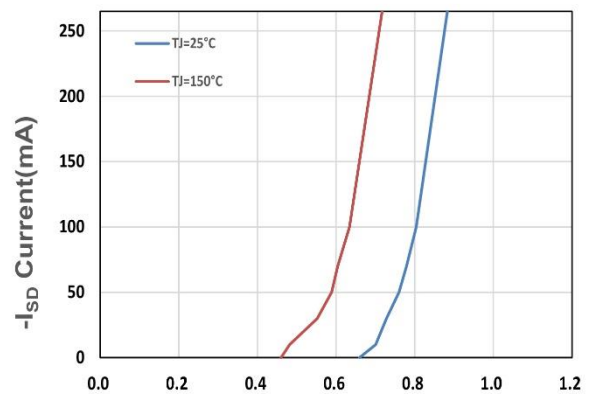
-V<sub>GS</sub> - Gate - Source Voltage (V)  
Figure 3. On-Resistance vs. VGS



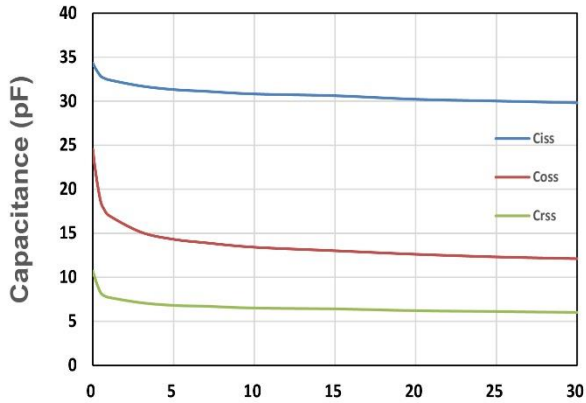
T<sub>j</sub>, Junction Temperature(°C)  
Figure 4. Gate Threshold Voltage



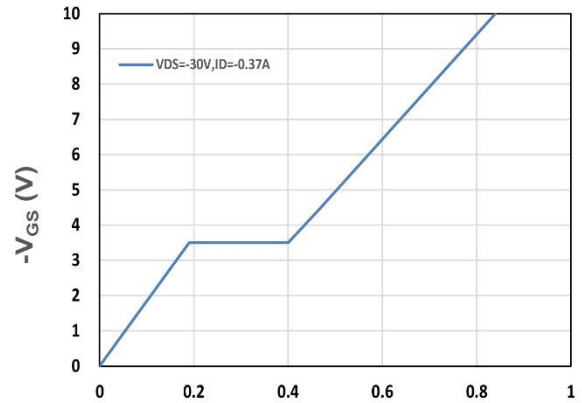
T<sub>j</sub>, Junction Temperature(°C)  
Figure 5. Drain-Source On Resistance



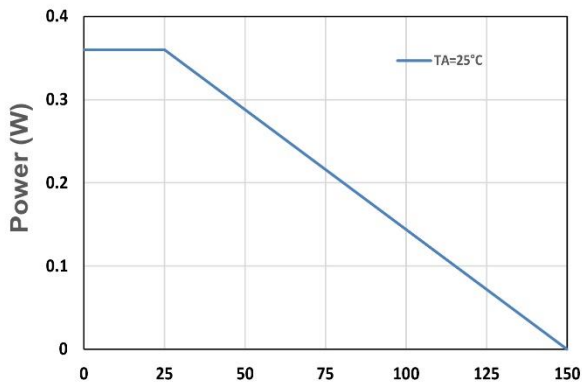
-V<sub>SD</sub>, Source-Drain Voltage(V)  
Figure 6. Source-Drain Diode Forward



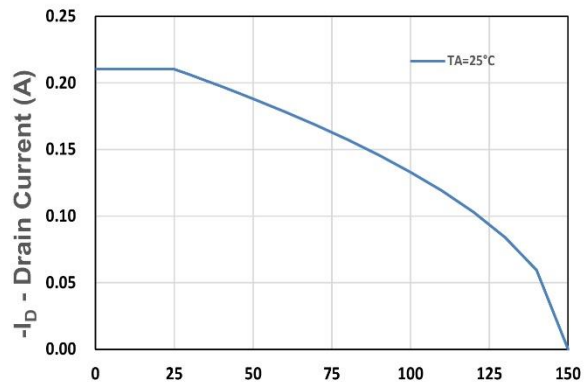
$-V_{DS}$  - Drain - Source Voltage (V)  
Figure 7. Capacitance



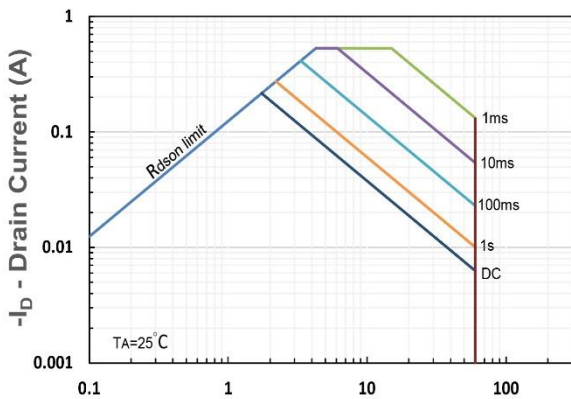
Qg, Total Gate Charge (nC)  
Figure 8. Gate Charge Characteristics



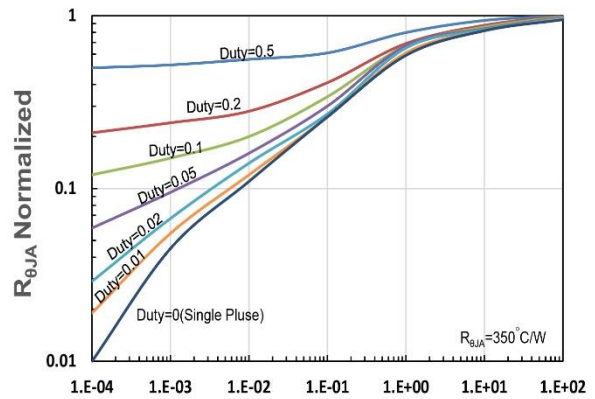
Tj - Junction Temperature (°C)  
Figure 9. Power Dissipation



Tj - Junction Temperature (°C)  
Figure 10. Drain Current

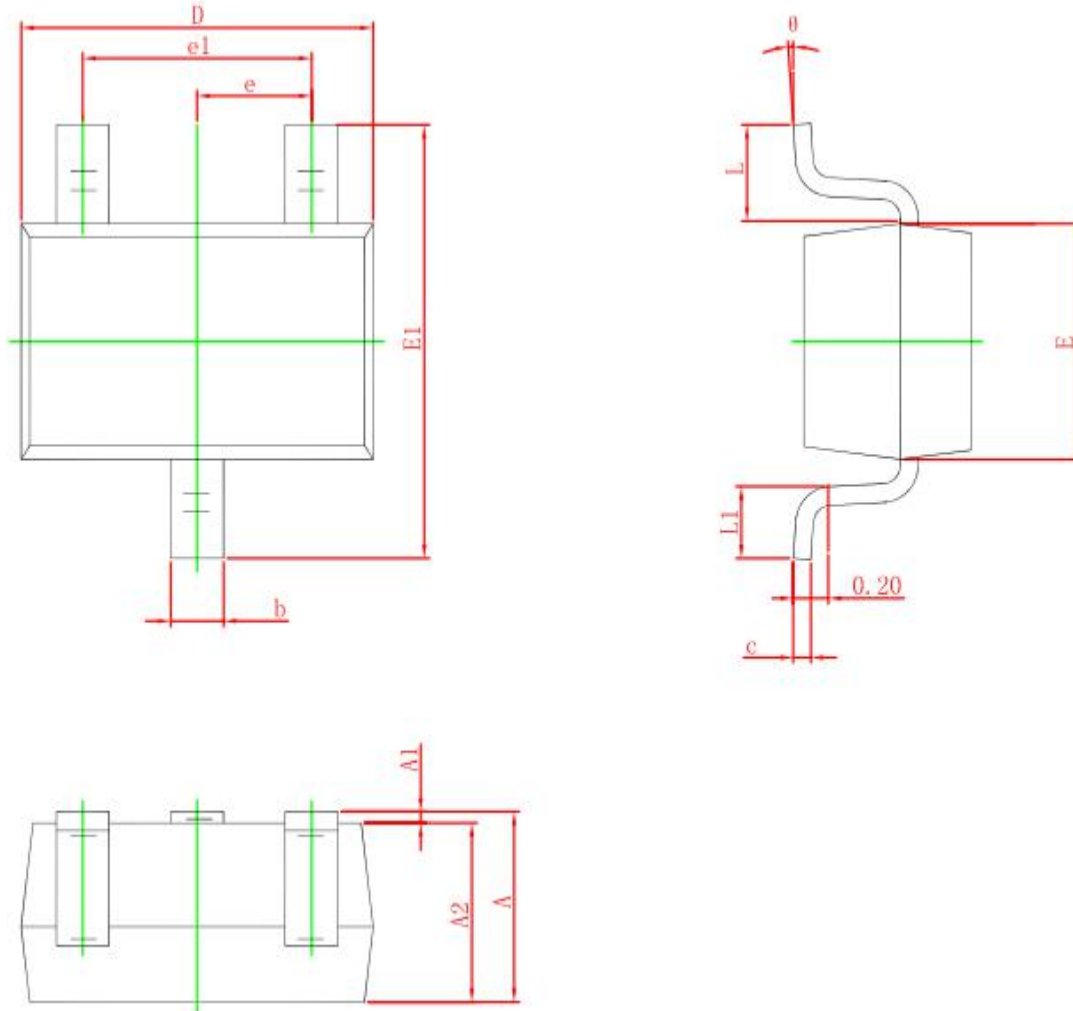


$-V_{DS}$  - Drain-Source Voltage (V)  
Figure 11. Safe Operating Area



$t_1$ , Square Wave Pulse Duration (s)  
Figure 12.  $R_{\theta JA}$  Transient Thermal Impedance

## SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°