

POWER MOSFET WAFER DATASHEET

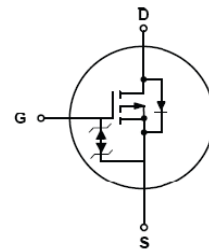
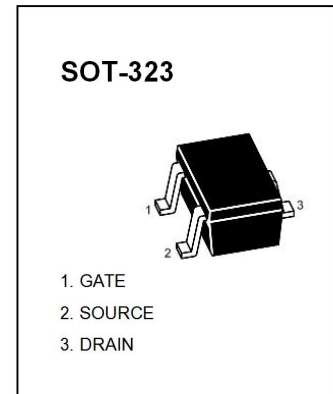
Feature

- 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	± 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_A=25°C Unless Otherwise Noted)

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

Note:

a : Current limit by max. junction temperature.

b : The R_{θJA} 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

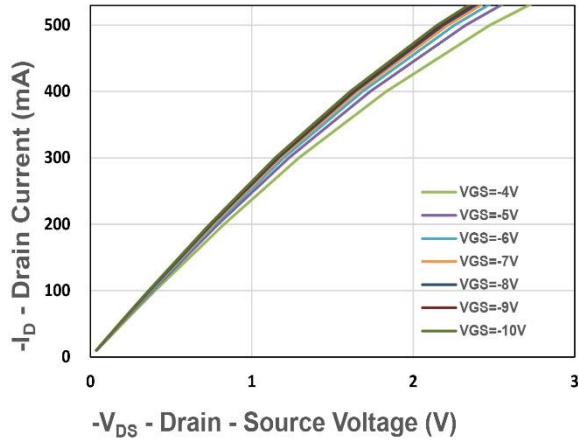


Figure 1. Output Characteristics

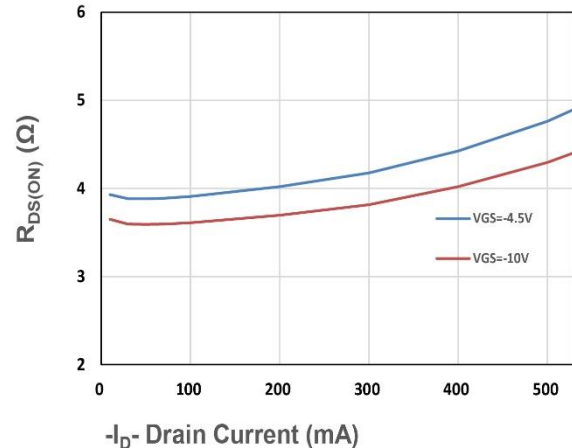


Figure 2. On-Resistance vs. I_D

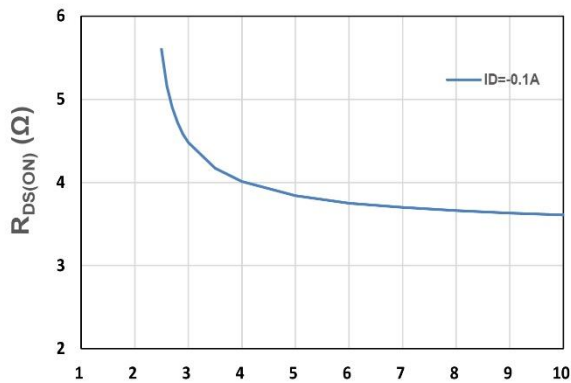


Figure 3. On-Resistance vs. V_{GS}

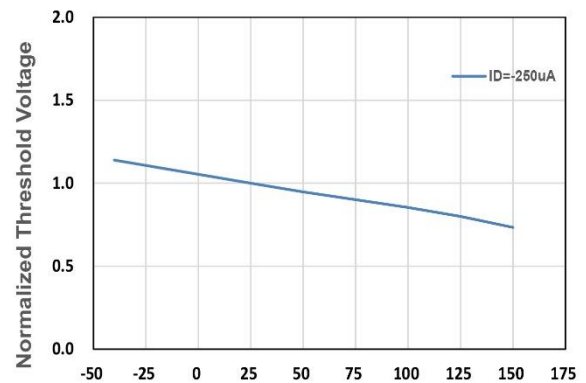


Figure 4. Gate Threshold Voltage

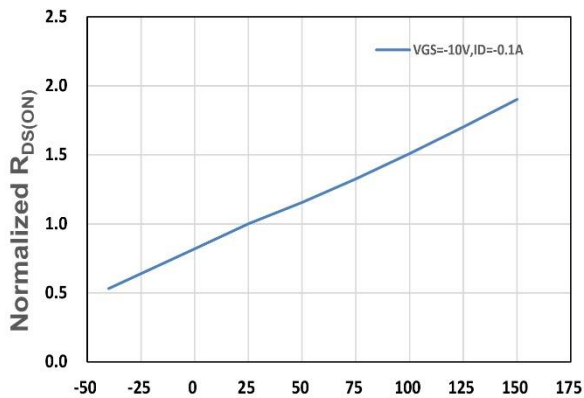


Figure 5. Drain-Source On Resistance

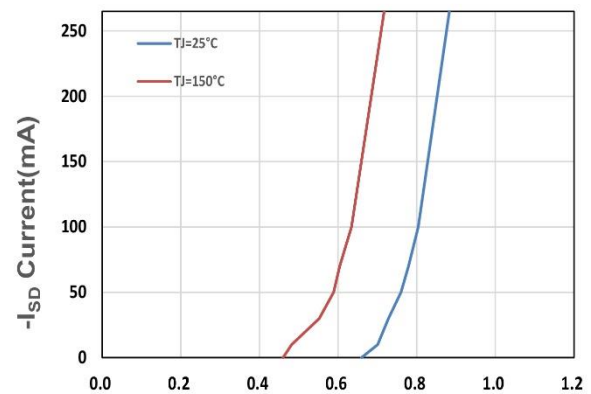
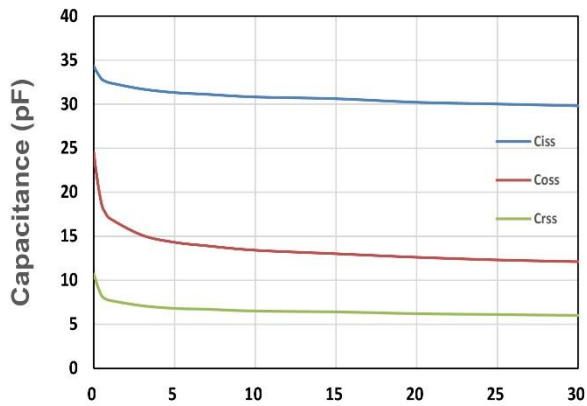
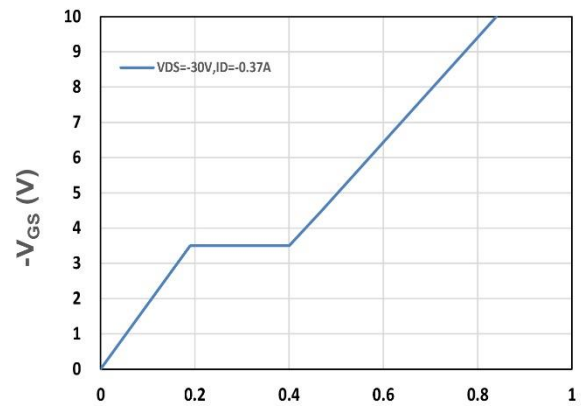


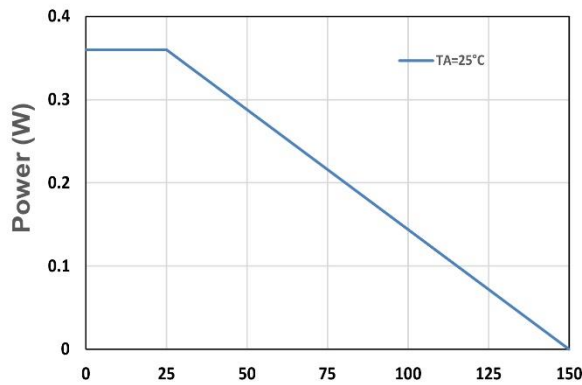
Figure 6. Source-Drain Diode Forward



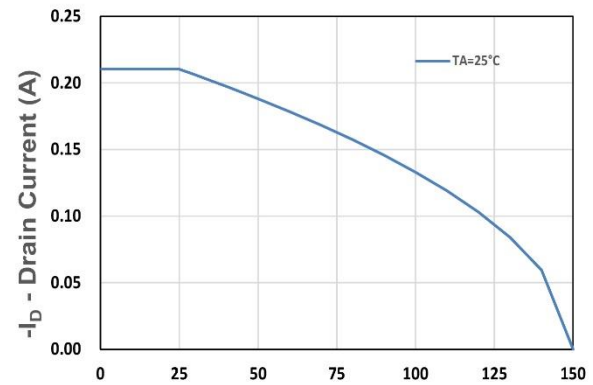
$-V_{DS}$ - Drain - Source Voltage (V)
Figure 7. Capacitance



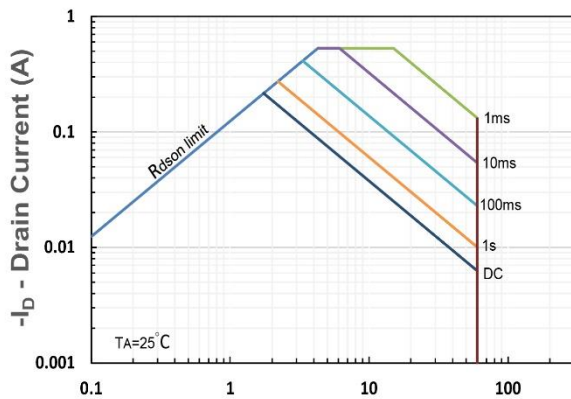
Q_g , Total Gate Charge (nC)
Figure 8. Gate Charge Characteristics



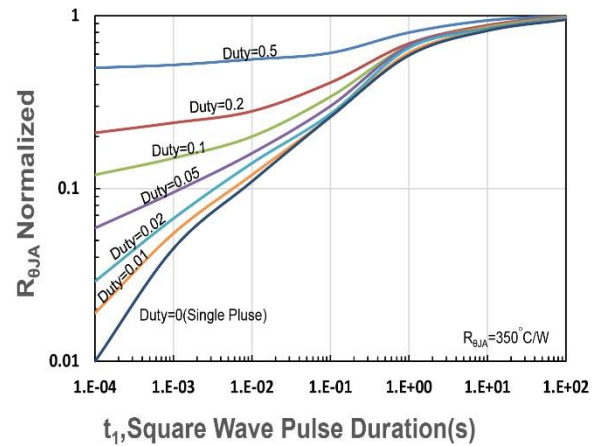
T_j - Junction Temperature (°C)
Figure 9. Power Dissipation



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

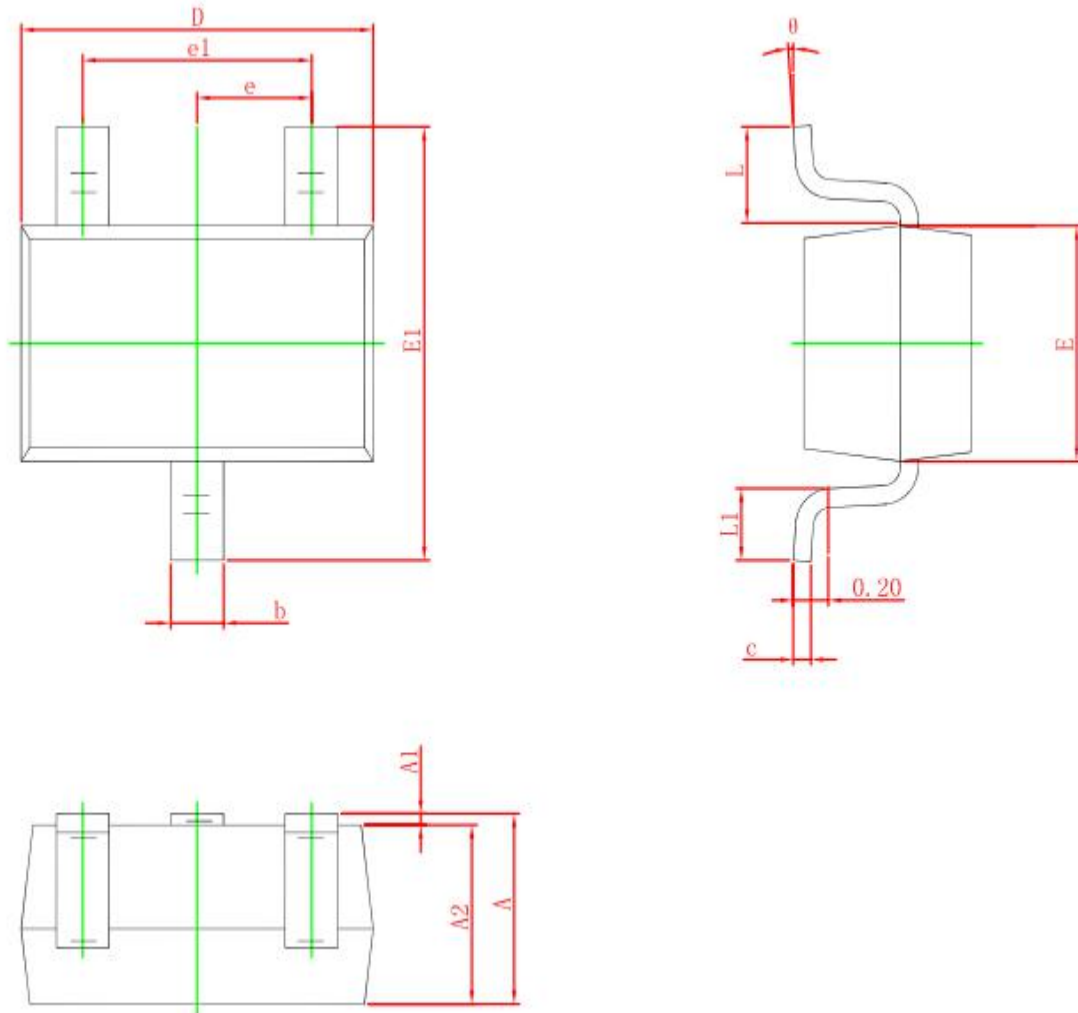


$-V_{DS}$ - Drain-Source Voltage (V)
Figure 11. Safe Operating Area



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°