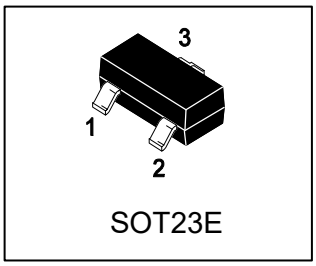
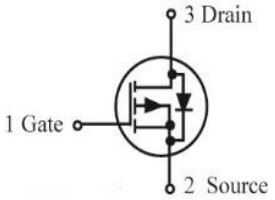
PA2305
S-PA2305

30V P-Channel Enhancement-Mode MOSFET



SOT23E



1. FEATURES

- VDS = -30V
- RDS(ON), Vgs@-10V, Ids@-4.2A = 70mΩ
- RDS(ON), Vgs@-4.5V, Ids@-4.0A = 85mΩ
- RDS(ON), Vgs@-2.5V, Ids@-1.0A = 130mΩ
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. APPLICATIONS

- Advanced trench process technology
- High density cell design for ultra low on-resistance.

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
PA2305	A05	3000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	-30	V
Gate–to–Source Voltage – Continuous	VGS	±12	V
Drain Current – Continuous TA = 25°C – Pulsed (Note 1)	 ID IDM	 -4.2 -30	A

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Power Dissipation	PD	0.9	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RΘJA	140	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	°C

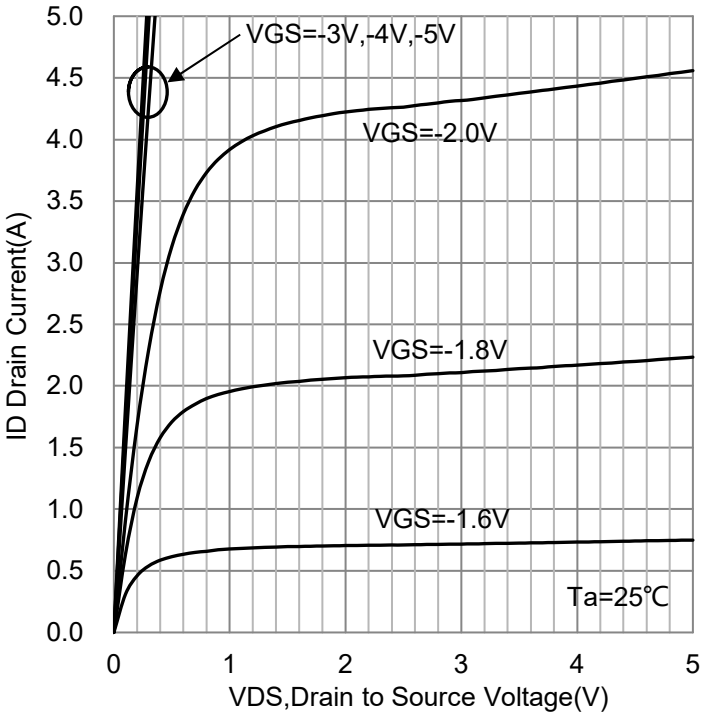
1.Repetitive Rating: Pulse width limited by the maximum junction temperature.

2.1-in² 2oz Cu PCB board.

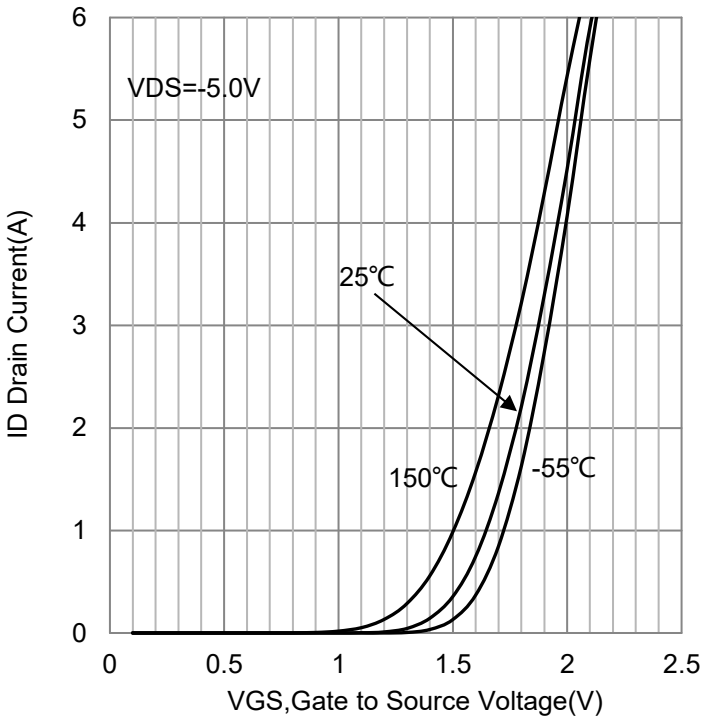
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic		Symbol	Min.	Typ.	Max.	Unit
Static						
Drain–Source Breakdown Voltage (VGS = 0, ID = -250μA)		VBRDSS	-30	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = -24 V)		IDSS	-	-	-1	μA
Gate–Body Leakage Current, Forward (VGS = 12 V)		IGSSF	-	-	100	nA
Gate–Body Leakage Current, Reverse (VGS = - 12 V)		IGSSR	-	-	-100	nA
Gate Threshold Voltage (VDS = VGS, ID = -250μA)		VGS(th)	-0.7	-	-1.3	V
Static Drain–Source On–State Resistance (VGS = -10 V, ID = -4.2 A) (VGS = -4.5 V, ID = -4 A) (VGS = -2.5 V, ID = -1 A)		RDS(on)	- - -	53 64 86	70 85 130	mΩ
Dynamic						
Input Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -15 V)		Ciss	-	723	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -15 V)		Coss	-	50	-	pF
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz,VDS= -15 V)		Crss	-	41	-	pF
Total Gate Charge (VDS = -15 V, VGS = - 4.5V, ID= -5.3 A)		Qg	-	7.4	-	nC
Gate-Source Charge (VDS = -15 V, VGS = - 4.5V, ID= -5.3 A)		Qgs	-	1.4	-	nC
Gate-Drain Charge (VDS = -15 V, VGS = - 4.5V, ID= -5.3 A)		Qgd	-	2.57	-	nC
Turn-On Delay Time	(VDD = -15V, RL= 15Ω ID = -1A, VGEN = -10V RG = 6.2Ω)	td(on)	-	3.6	-	ns
Rise Time		tr	-	7.98	-	
Turn-Off Delay Time		td(off)	-	53.6	-	
Fall Time		tf	-	14.8	-	
Forward Voltage (VGS = 0 V, ISD = -1 A)		VSD	-	-	-1	V

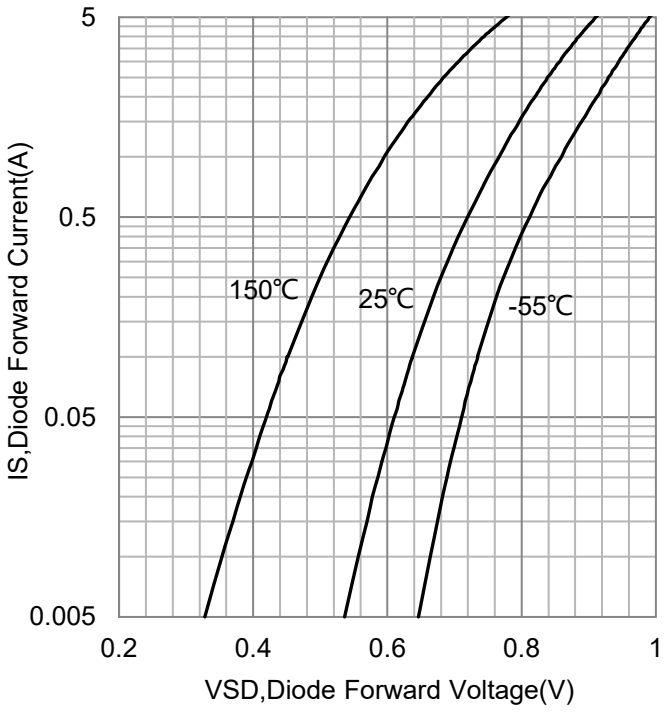
7. ELECTRICAL CHARACTERISTICS CURVES



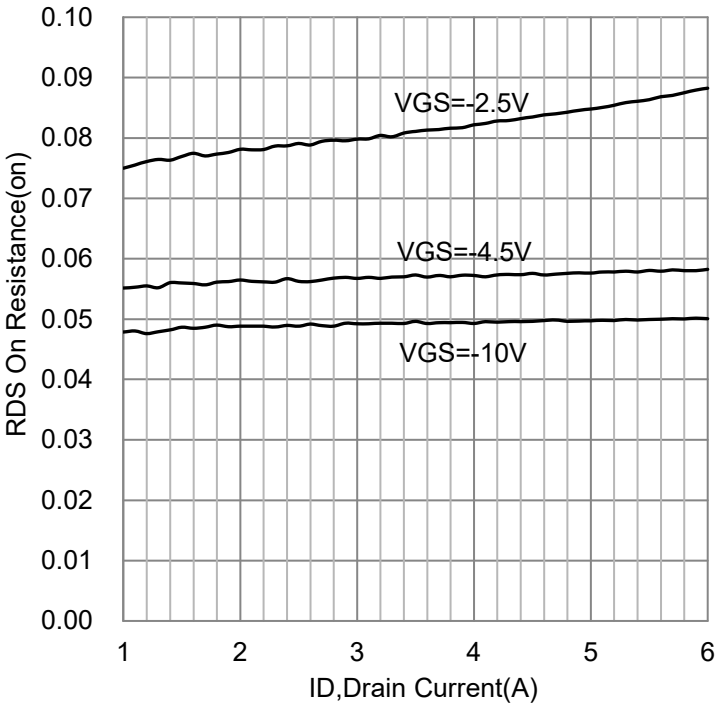
ID vs. VDS



ID vs. VGS

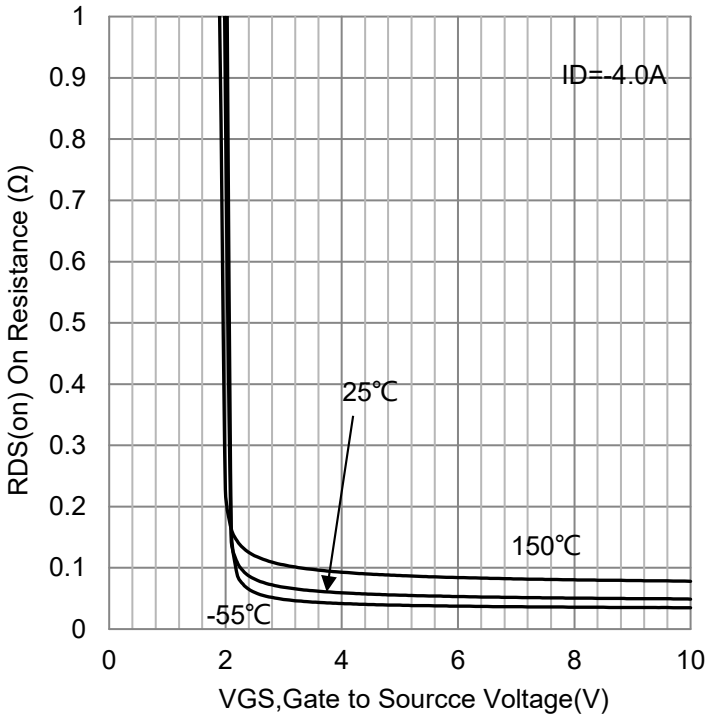


IS vs. VSD

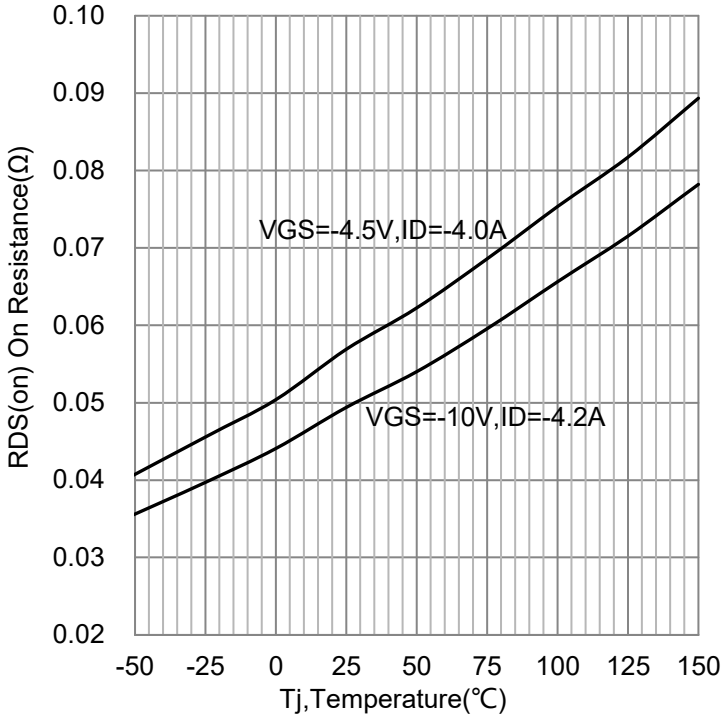


RDS(on) vs. ID

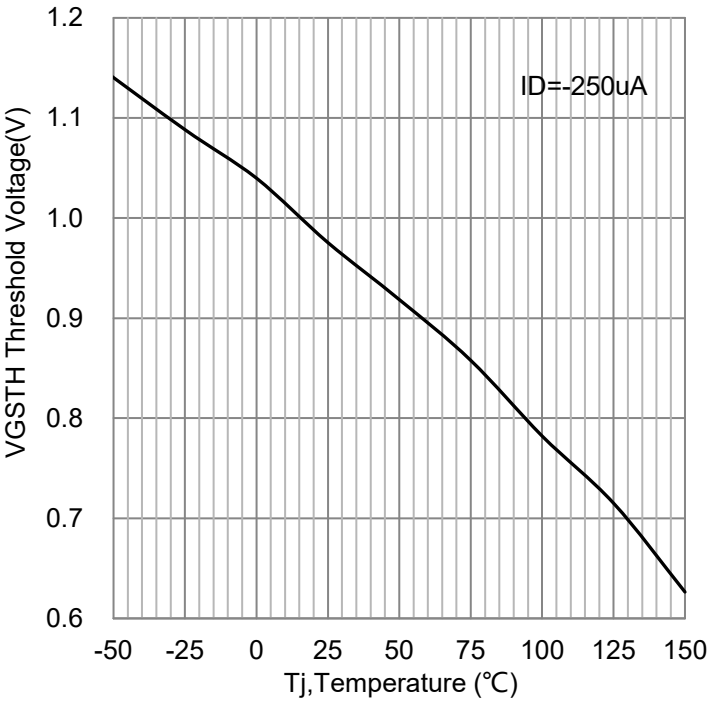
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



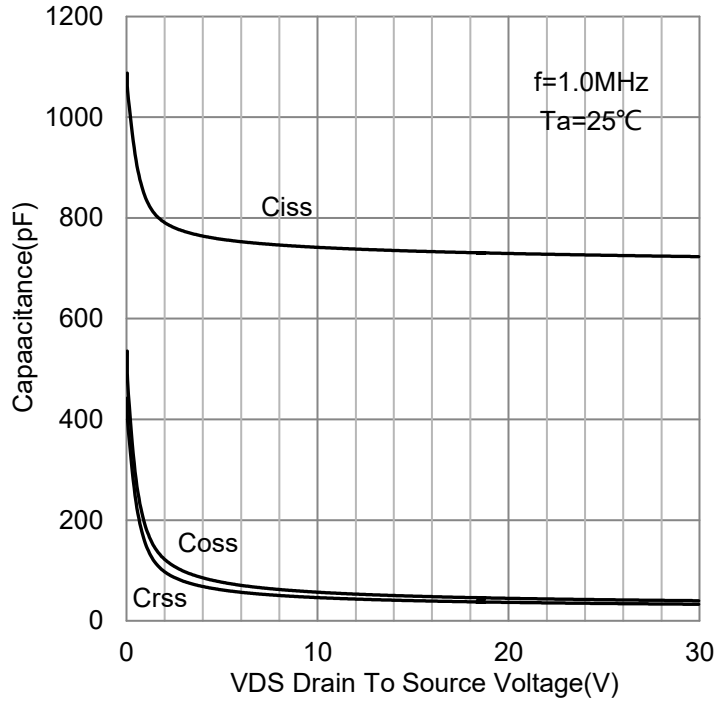
RDS(on) vs. VGS



RDS(on) vs. Tj

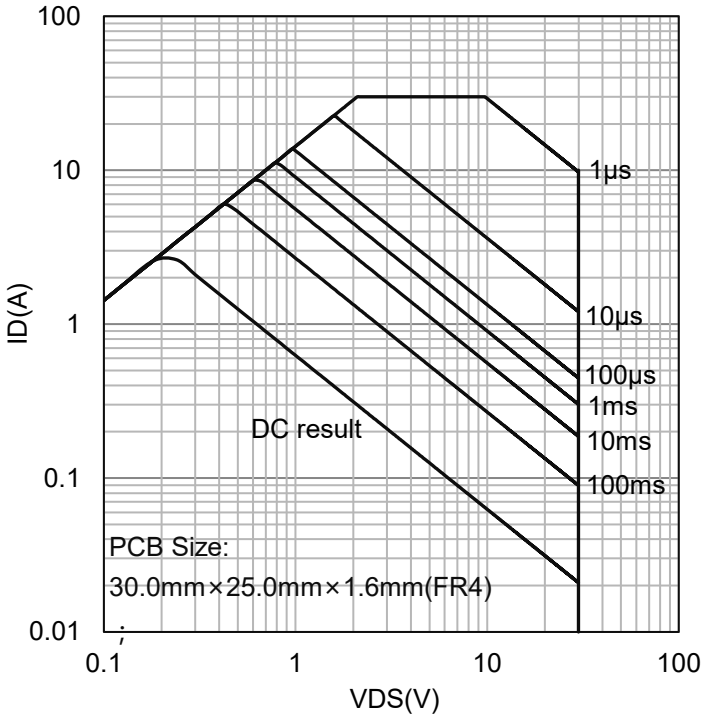


VGSTH vs. Tj



Capacitance

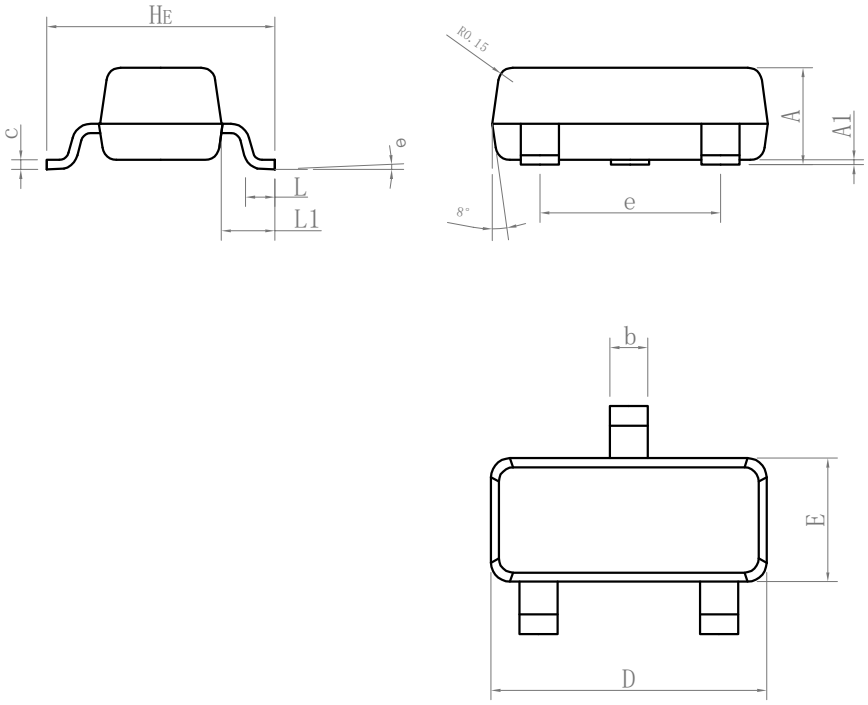
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



Safe Operating Area

8.OUTLINE AND DIMENSIONS

SOT23-E

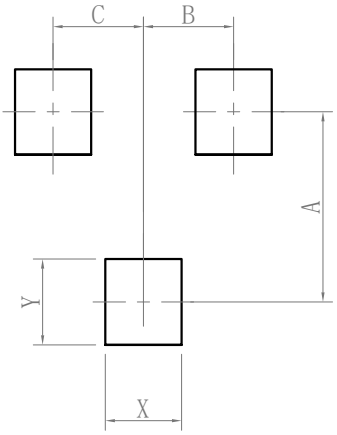


SOT23-E			
DIM	MIN	NOR	MAX
A	0.90	1.00	1.10
A1	0.01	0.06	0.10
b	0.30	0.40	0.50
c	0.10	0.15	0.20
D	2.80	2.90	3.00
E	1.20	1.30	1.40
e	1.80	1.90	2.00
L	0.20	0.40	0.60
L1	0.45	0.55	0.65
HE	2.20	2.40	2.60
θ	0°	-	10°
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish Ra0.4±0.2um
2. Bottom package surface finish Ra0.7±0.2um
3. Side package surface finish Ra0.4±0.2um

9.SOLDERING FOOTPRINT



SOT23-E	
DIM	(mm)
X	0.80
Y	0.90
A	2.00
B	0.95
C	0.95