

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=20V$
- $I_D=4.5A$
- $R_{DS(on)}@V_{GS}=4.5V < 25m\Omega$
- $R_{DS(on)}@V_{GS}=2.5V < 32m\Omega$
- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching

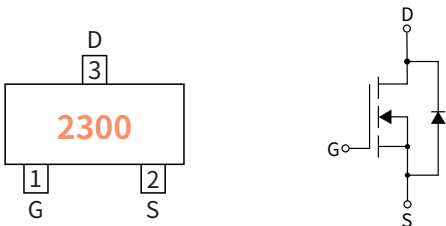
Applications

- Battery protection
- Load switch
- Power management

Mechanical Data

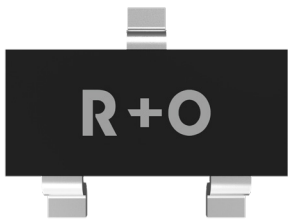
- Case: SOT-23
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Drain-source Voltage
20 V
Drain Current
4.5 Ampere

SOT-23



Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER		SYMBOL	UNIT	VALUE
Drain-source Voltage		V_{DS}	V	20
Gate-source Voltage		V_{GS}	V	± 10
Drain Current	Ta=25°C	I_D	A	4.5
	Ta=100°C			2.8
Pulsed Drain Current		I_{DM}	A	30
Total Power Dissipation	Ta=25°C	P_D	W	1
	Ta=100°C			0.4
Storage temperature	T_{stg}	°C	—	-55 ~+150
Junction temperature	T_j	°C	—	-55 ~+150
Thermal Resistance Junction-to-Ambient		$R_{\theta JA}$	°C /W	125

Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	45000	180000	7"

● Static Parameter Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	V	20	—	—
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	μA	—	—	1.0
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	nA	—	—	± 100
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	V	0.4	0.6	1
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=4.5A$	m Ω	—	20	25
		$V_{GS}=2.5V, I_D=3A$		—	25	32
		$V_{GS}=1.8V, I_D=2.7A$		—	33	46
Diode Forward Voltage	V_{SD}	$I_S=4.5A, V_{GS}=0V$	V	—	0.9	1.2
Gate resistance	R_G	f=1MHz, Open drain	Ω	—	2.7	—
Maximum Body-Diode Continuous Current	I_S	—	A	—	—	4.5

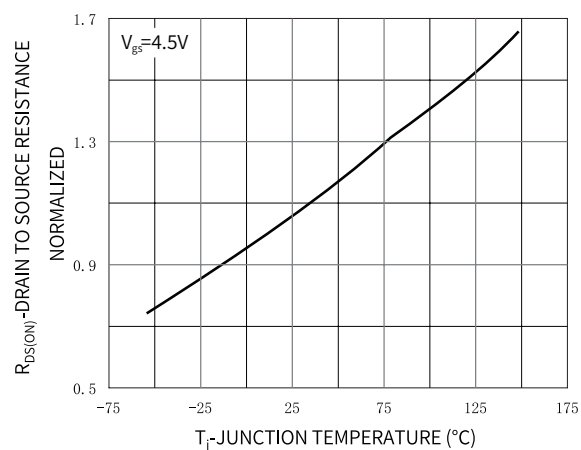
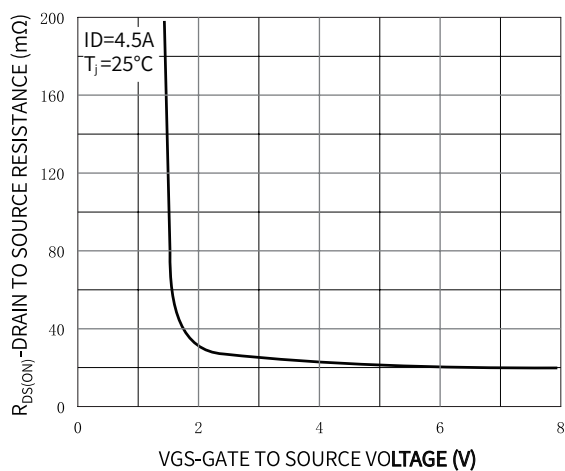
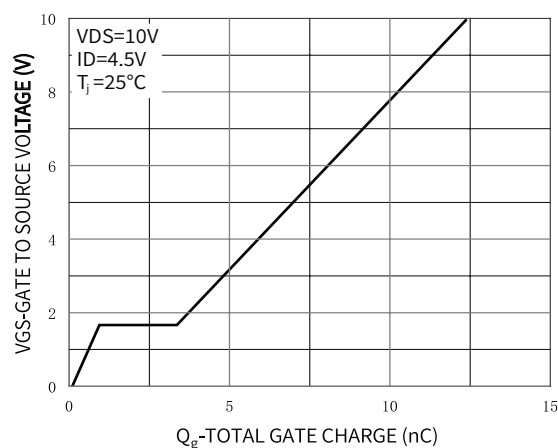
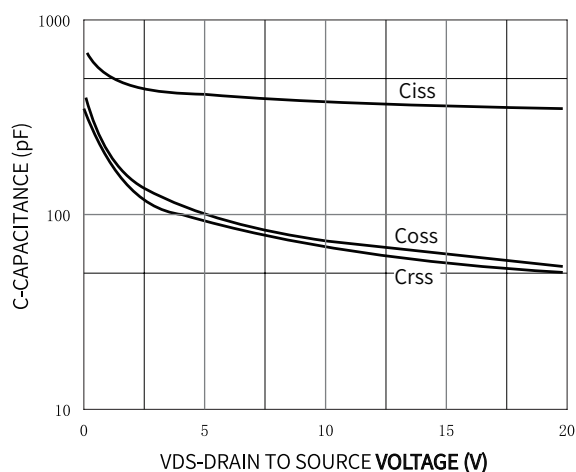
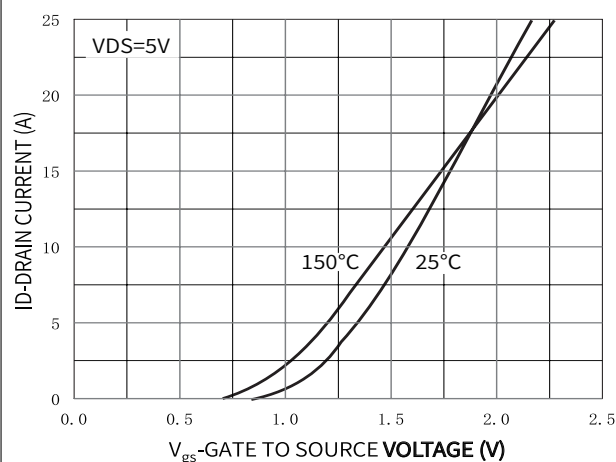
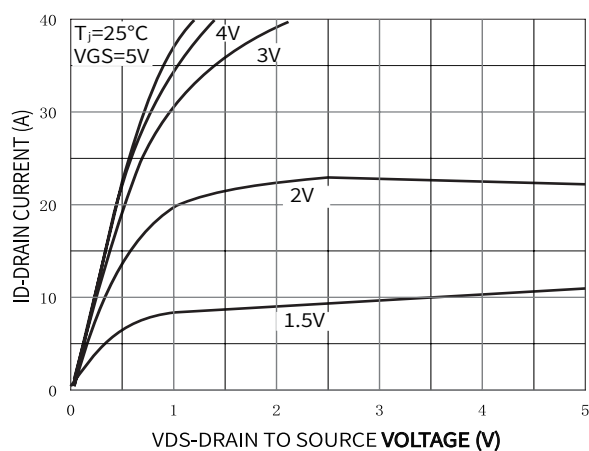
● Dynamic Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C_{iss}	$V_{DS}=10V$ $V_{GS}=0V$ f=1MHz	pF	—	418	—
Output Capacitance	C_{oss}			—	82	—
Reverse Transfer Capacitance	C_{rss}			—	70	—

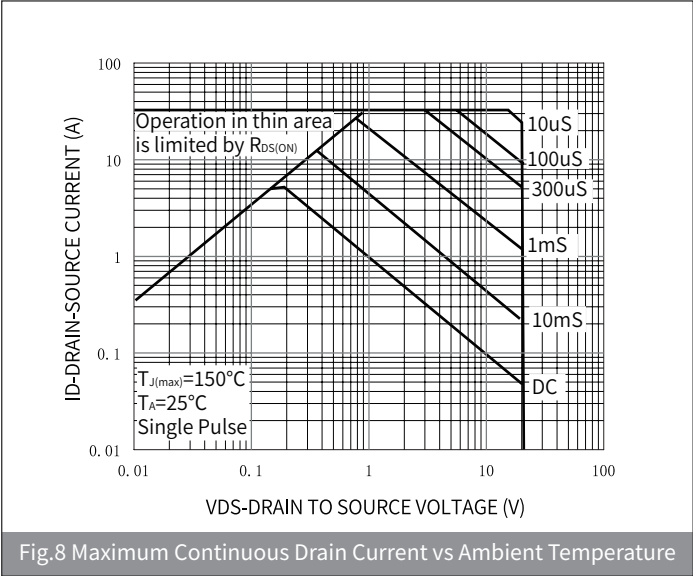
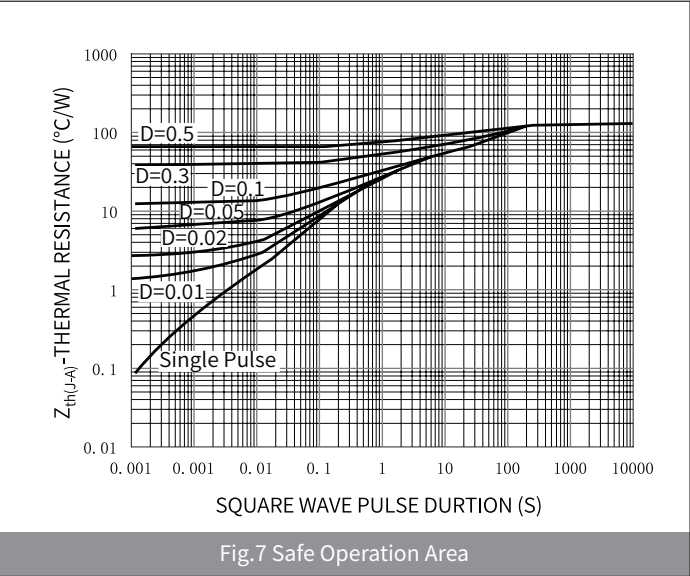
● Switching Parameters (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=10V, I_D=4.5A$	nC	—	6.06	—
Gate-Source Charge	Q_{gs}			—	1.07	—
Gate-Drain Charge	Q_{gd}			—	1.95	—
Reverse Recovery Charge	Q_{rr}	$I_F=4.5A, di/dt=150A/us$	nC	—	1.38	—
Reverse Recovery Time	t_{rr}		ns	—	17.9	—
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V, V_{DS}=10V, I_D=4.5A$ $R_{GEN}=3\Omega$	ns	—	4.2	—
Turn-on Rise Time	t_r			—	19.8	—
Turn-off Delay Time	$t_{D(off)}$			—	22.6	—
Turn-off fall Time	t_f			—	23.2	—

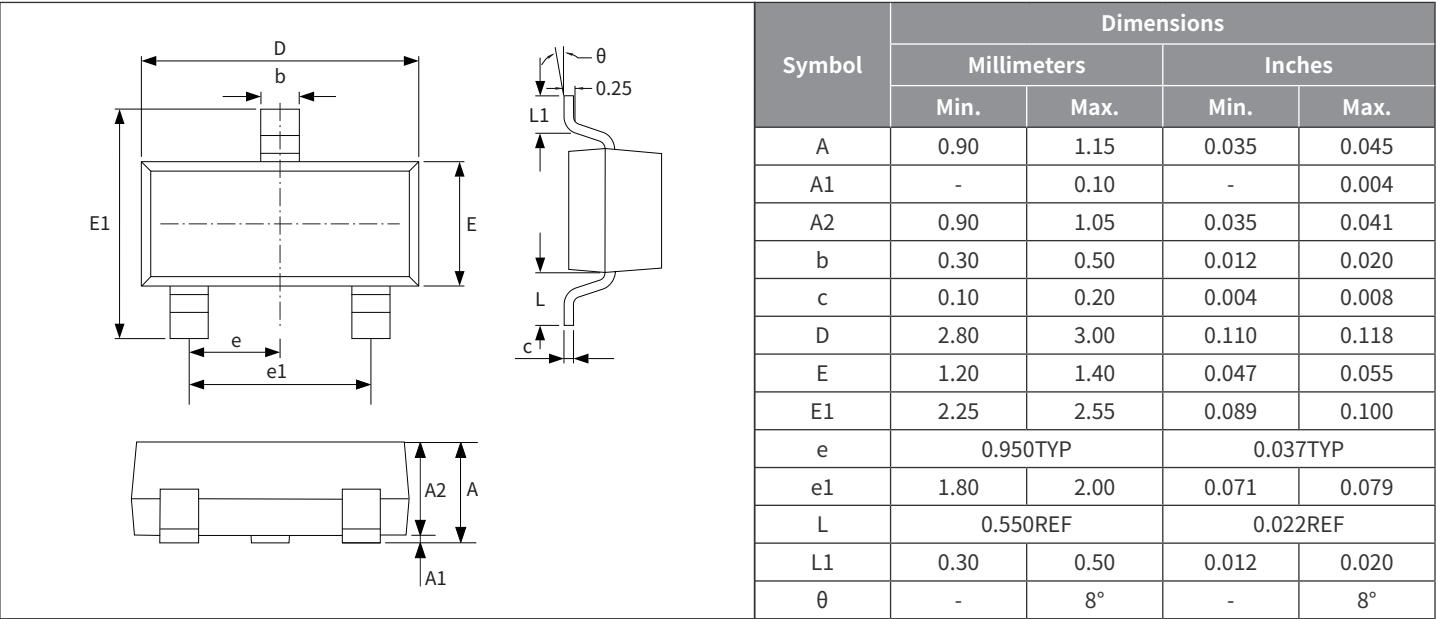
● Ratings And Characteristics Curves ($T_a=25^\circ\text{C}$ Unless otherwise specified)



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● Package Outline Dimensions (SOT-23)



● Suggested Pad Layout

