

SI2306



30V N-Channel Enhancement Mode MOSFET

VDS= 30V

RDS(ON), Vgs@ 10V, Ids@ 3.5A <57mΩ

RDS(ON), Vgs@ 4.5V, Ids@ 2.8A <94mΩ

Features

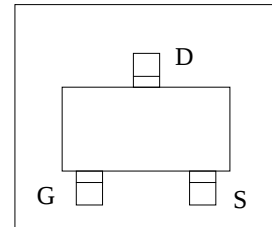
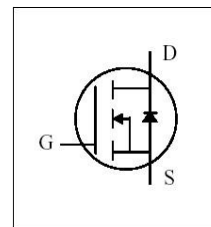
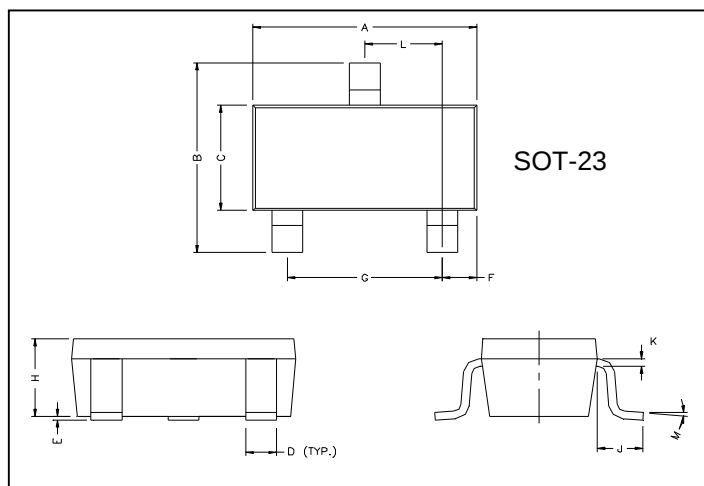
Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

High Power and Current handling capability

Ideal for Li ion battery pack applications

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.00	G	1.80	2.00
B	2.30	2.50	H	0.90	1.1
C	1.20	1.40	K	0.10	0.20
D	0.30	0.50	J	0.35	0.70
E	0	0.10	L	0.92	0.98
F	0.45	0.55	M	0°	10°

● Absolute Maximum Ratings @TA = 25°C unless otherwise noted

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	
Drain Current (Note 1)	I _D	3.5	A
Power Dissipation (Note 1)	P _D	350	mW
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Note: 1. Mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch, for each single die.

- Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS (Note 2)						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30	35	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 25V, V_{GS} = 0V$	--	--	1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	--	--	± 100	nA
ON CHARACTERISTICS (Note 2)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.1		1.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 3.5A$	--	--	57	m Ω
		$V_{GS} = 4.5V, I_D = 2.8A$	--	--	94	
Forward Transconductance	G_{FS}	$V_{DS} = 10V, I_D = 6A$	--	5	--	S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS} = 8V, V_{GS} = 0V$ $F = 1.0MHz$	--	562	--	pF
Output Capacitance	C_{OSS}		--	106	--	
Reverse Transfer Capacitance	C_{RSS}		--	75	--	
Total Gate Charge	Q_G	$V_{DS} = 10V, I_D = 6A,$ $V_{GS} = 4.5V$	--	4.86	--	nC
Gate-Source Charge	Q_{GS}		--	0.92	--	
Gate-Drain	Q_{GD}		--	1.4	--	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$T_{D(ON)}$	$V_{DD} = 10V, I_D = 1A,$ $V_{GEN} = 4.5V, R_G = 6\Omega$	--	18	--	ns
Turn-Off Delay Time	$T_{D(OFF)}$		--	25	--	

Note: 2. Short duration test pulse used to minimize self-heating effect.

- Typical Performance Characteristics

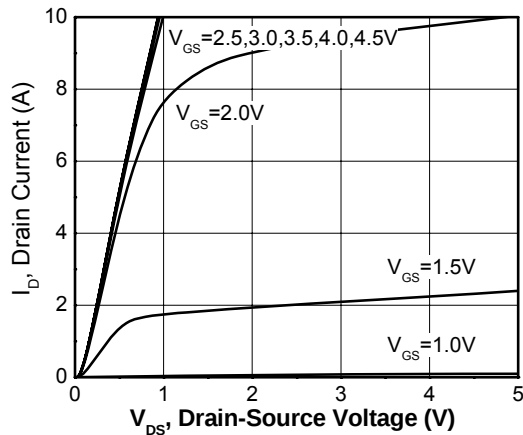


Figure 1. Output Characteristics

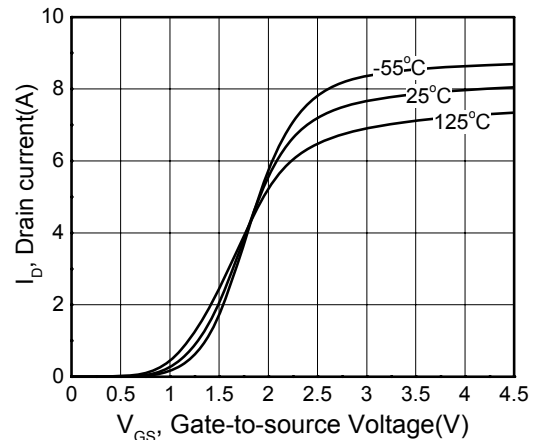


Figure 2. Transfer Characteristics

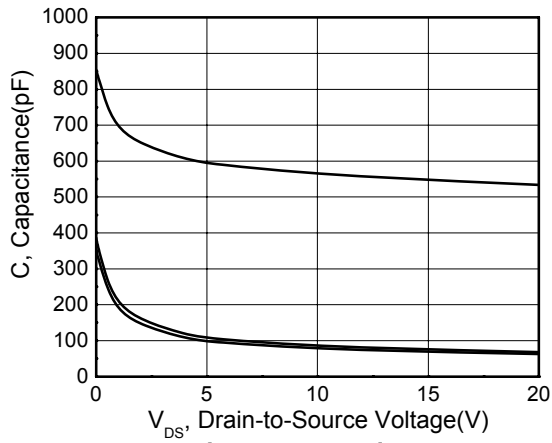


Figure 3. Capacitance

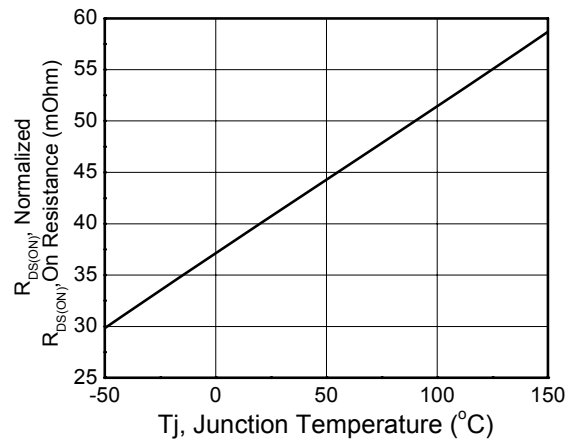


Figure 4. On Resistance Vs. Temperature

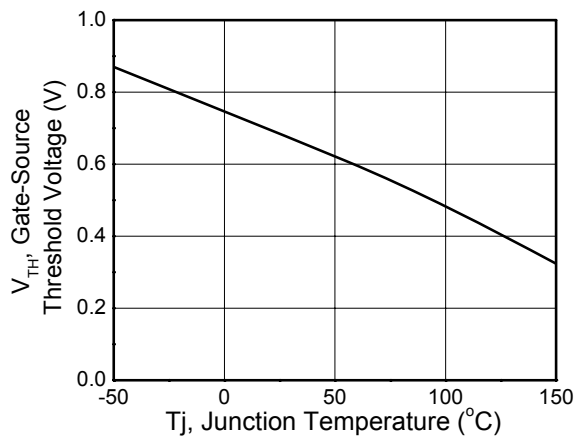


Figure 5. Gate Thershold Vs. Temperature

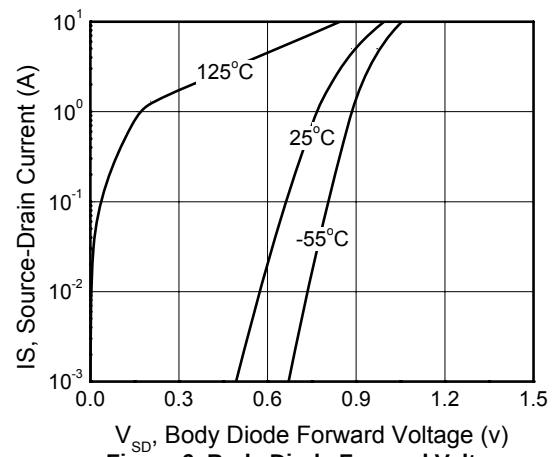


Figure 6. Body Diode Forward Voltage
Vs. Source Current