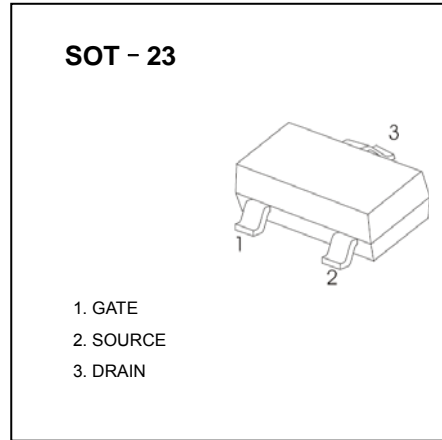


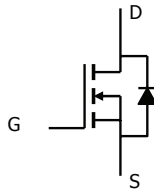
**N-Channel 30-V (D-S) MOSFET**

■ **Features**

- $V_{DS} (V) = 30V$
- $R_{DS(ON)} < 35m\Omega$  ( $V_{GS} = -10V$ ),  $I_D = 3.6A$
- $R_{DS(ON)} < 50 m\Omega$  ( $V_{GS} = -4.5V$ ),  $I_D = 3A$



**Equivalent Circuit**



■ **Absolute Maximum Ratings  $T_a = 25$**

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	$V_{DS}$	30	V	
Gate-Source Voltage	$V_{GS}$	$\pm 20$		
Continuous Drain Current $T_j = 150^\circ C$ *1	$I_D$	$T_a = 25^\circ C$	3.6	A
		$T_a = 70^\circ C$	3	
Pulsed Drain Current	$I_{DM}$	16		
Power Dissipation *1	$P_D$	$T_a = 25^\circ C$	1.25	W
		$T_a = 70^\circ C$	0.8	
Thermal Resistance. Junction- to-Ambient	$R_{thJA}$	$t \leq 5 \text{ sec}$	100	$^\circ C/W$
		Steady State	130	
Junction Temperature	$T_J$	150	$^\circ C$	
Storage Temperature Range	$T_{stg}$	-55 to 150		

\*1. Surface Mounted on FR4 Board,  $t \leq 5 \text{ sec}$

**N-Channel 30-V (D-S) MOSFET**

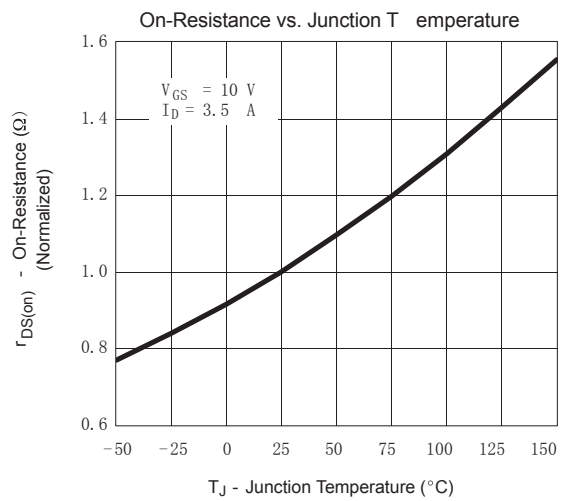
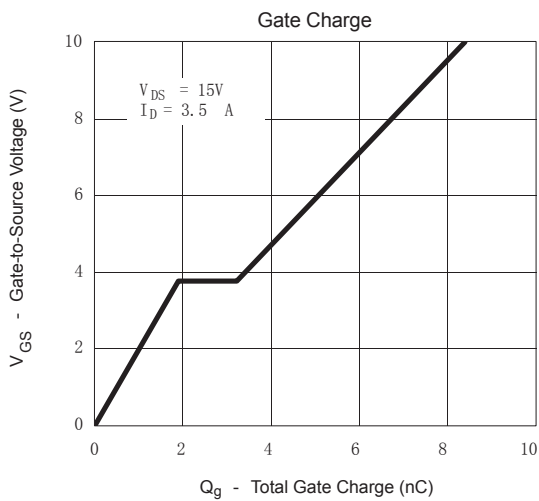
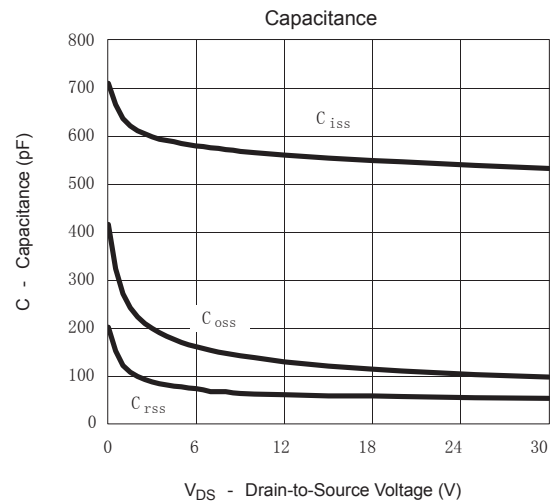
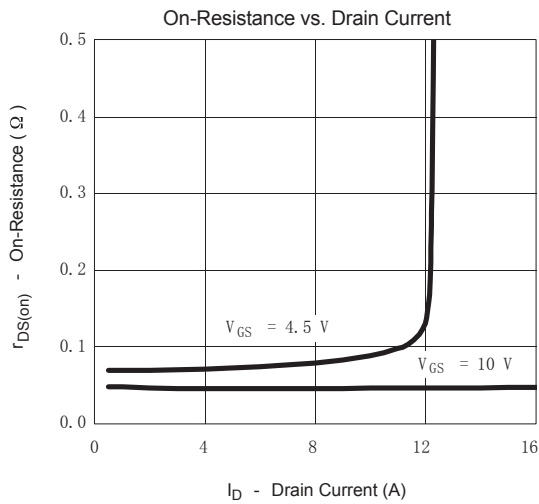
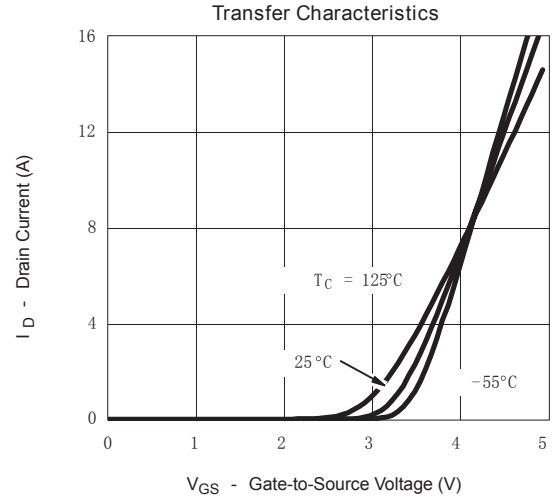
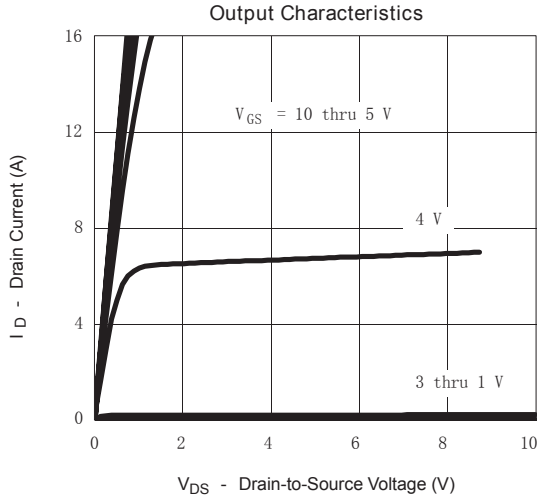
■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA	30			V
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	1		3	
Gate-body leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ± 20 V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0 V			0.5	μA
		V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55 °C			10	
On-state drain current	I <sub>D(on)</sub>	V <sub>DS</sub> ≥ 4.5 V, V <sub>GS</sub> = 10 V	6			A
		V <sub>DS</sub> ≥ 4.5 V, V <sub>GS</sub> = 4.5 V	4			
Drain-source on-state resistance	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 3.5 A			35	mΩ
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 2.8 A			50	
Forward transconductance	g <sub>fs</sub>	V <sub>DS</sub> = 4.5 V, I <sub>D</sub> = 3.5 A		6.9		S
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> = 1.25 A, V <sub>GS</sub> = 0 V		0.8	1.2	V
gate charge *	Q <sub>g</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 5V, I <sub>D</sub> = 3.5 A		4.2	7	nC
Total gate charge *	Q <sub>gt</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 3.5 A		8.5	20	nC
Gate-source charge *	Q <sub>gs</sub>			1.9		
Gate-drain charge *	Q <sub>gd</sub>			1.35		
Gate Resistance	R <sub>g</sub>		0.5		2.4	Ω
Input capacitance *	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0, f = 1 MHz		555		pF
Output capacitance *	C <sub>oss</sub>			120		
Reverse transfer capacitance *	C <sub>rss</sub>			60		
Turn-on time	t <sub>d(on)</sub>	V <sub>DD</sub> = 15V, R <sub>L</sub> = 15 Ω, I <sub>D</sub> = 1A, V <sub>GEN</sub> = -10V, R <sub>G</sub> = 6Ω		9	20	ns
	t <sub>r</sub>			7.5	18	
Turn-off time	t <sub>d(off)</sub>			17	35	
	t <sub>f</sub>			5.2	12	

\* Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.

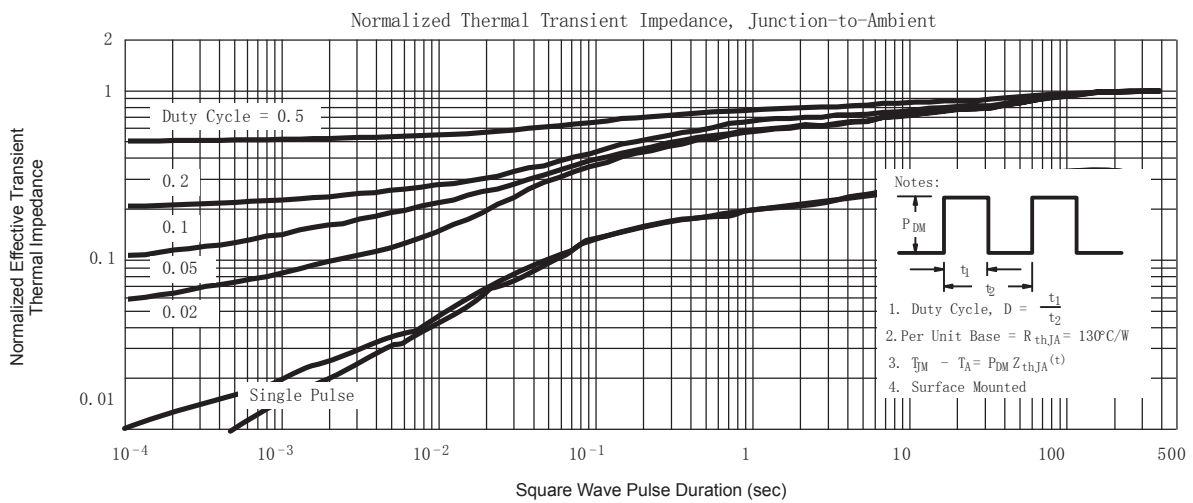
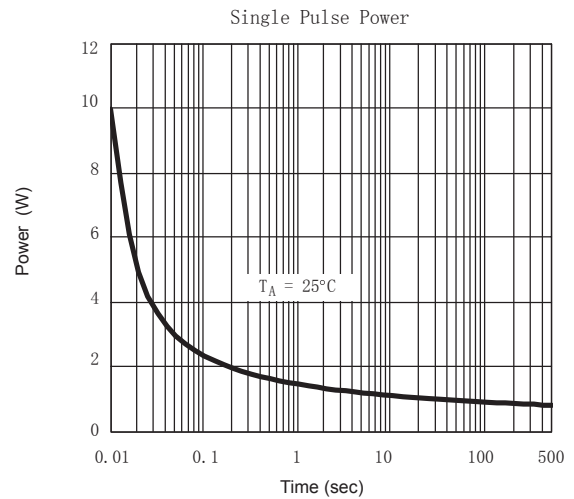
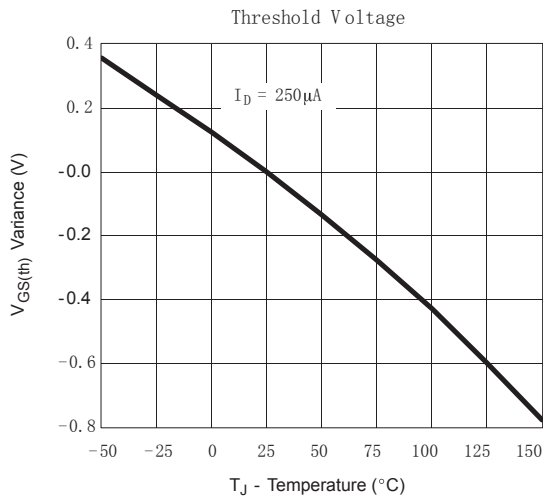
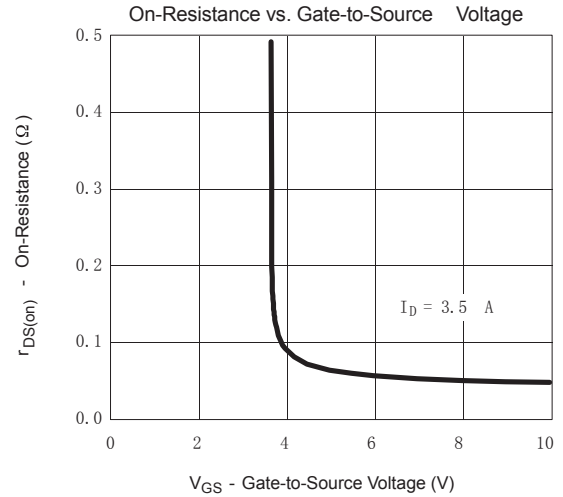
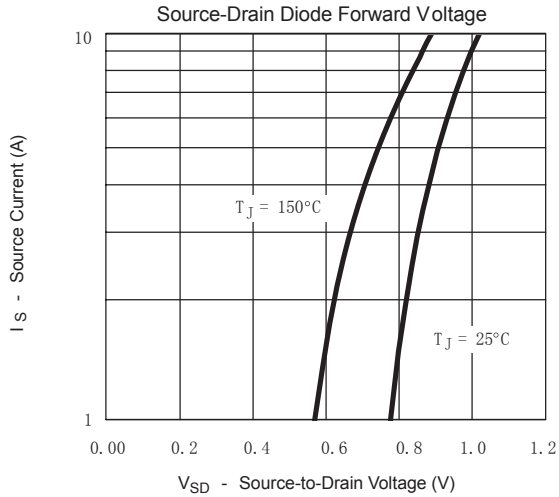
**N-Channel 30-V (D-S) MOSFET**

■ Typical Characteristics



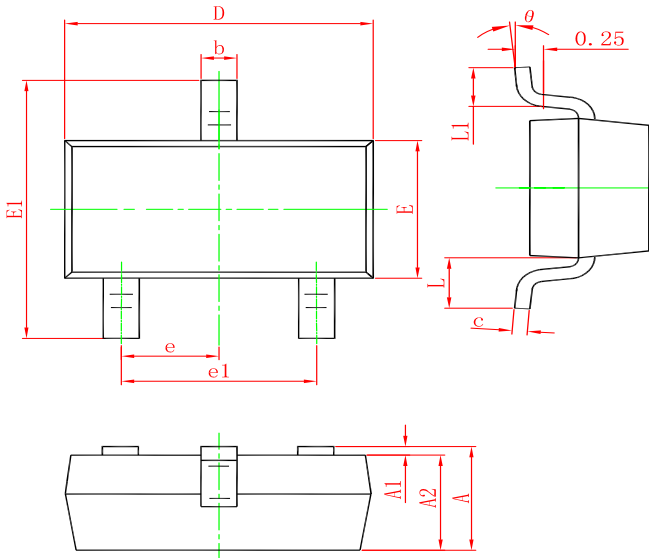
**N-Channel 30-V (D-S) MOSFET**

**Typical Characteristics**



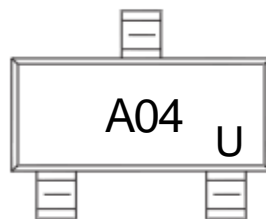
**N-Channel 30-V (D-S) MOSFET**

**SOT-23 PACKAGE OUTLINE DIMENSIONS**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**Marking**



**Ordering information**

Order code	Package	Baseqty	Deliverymode
SI2304A	SOT-23	3000	Tape and reel