



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

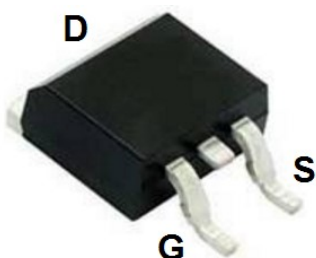
● FEATURES

$R_{DS(ON)}$ [1.6mΩ@VGS=10V](#) TYP
 $R_{DS(ON)}$ [2.45mΩ@VGS=4.5V](#) TYP
 high density cell design for extremely low $R_{DS(ON)}$
 Exceptional on-resistance and maximum DC current capability

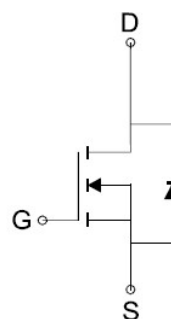
● GENERAL DESCRIPTION

The FS2250 combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

● PIN CONFIGURATION



TO263-2



N-Channel MOSFET

● Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	VDSS	30	V
Gate-Source Voltage	VGSS	±20	V
Continuous Drain Current ^{NOTE}	ID	TA=25°C	A
		TA=100°C	
Pulsed Drain Current ^{NOTE}	IDM	1050	
Continuous Drain Current(TJ =150°C)* ^{NOTE}	IDSM	TA=25°C	A
		TA=70°C	
Operating Junction Temperature	TJ	-55 to 150	°C
Thermal Resistance-Junction to Ambient*	RθJA	62.5	°C/W
Thermal Resistance-Junction to Case*	RθJL	0.7	

NOTE:

- 1、 The device mounted on 1in² FR4 board with 2 oz copper
- 2、 Pulse test ; pulse width ≤300μs, duty cycle≤2%.



● **Electrical Characteristics** ($T_J=25^\circ\text{C}$ unless otherwise noted)

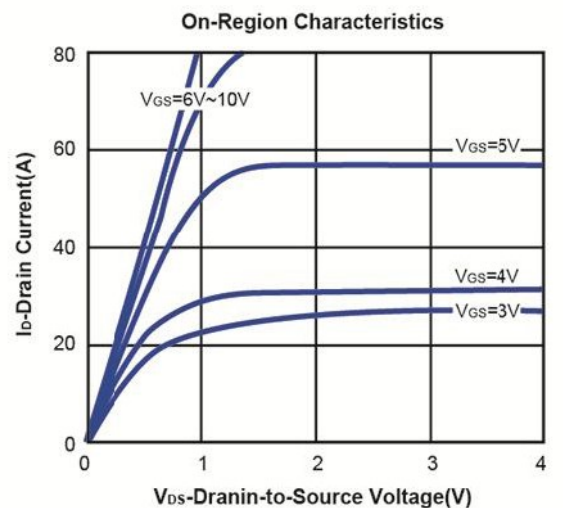
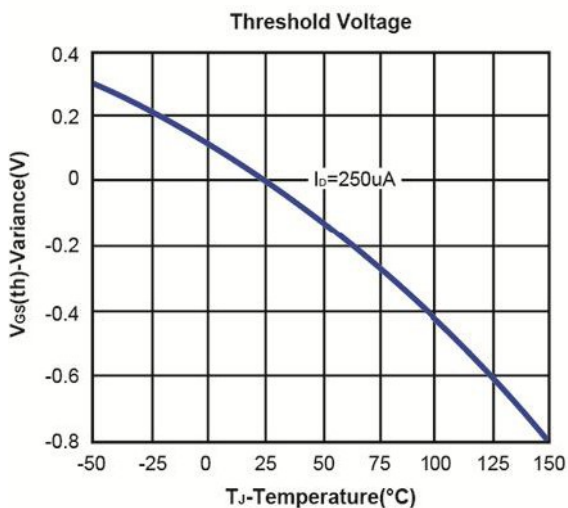
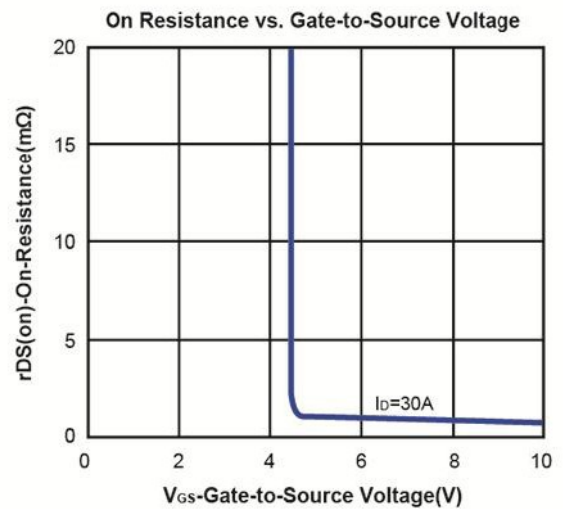
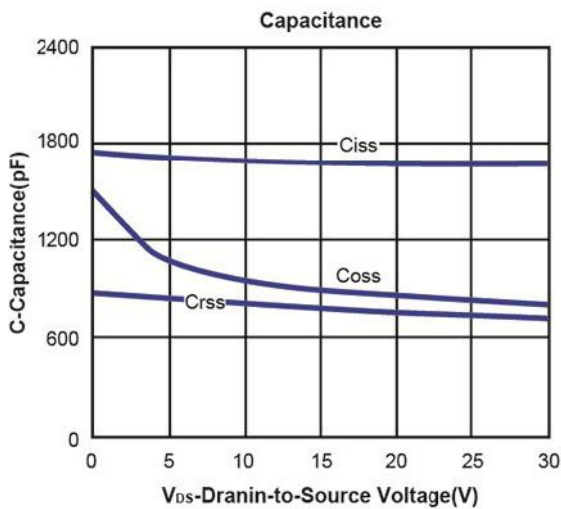
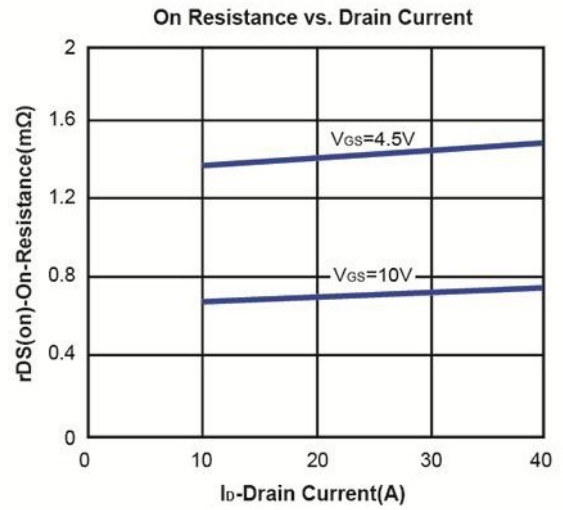
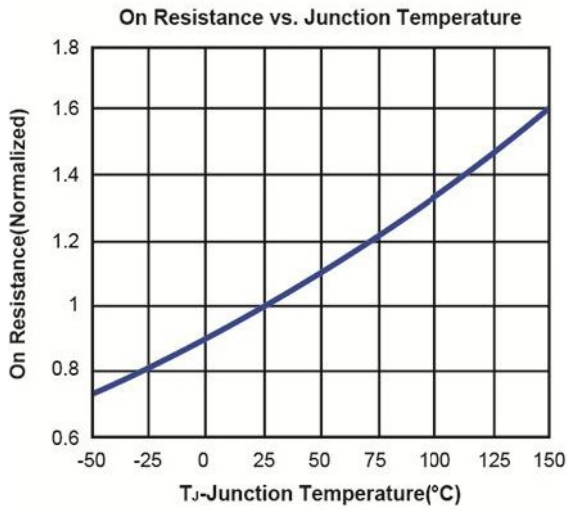
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250 μ A	30			V
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250 μ A	1.3		2.2	V
IGSS	Gate Leakage Current	VDS=0V, VGS= \pm 20V			\pm 100	nA
IDSS	Zero Gate Voltage Drain Current	VDS=30V, VGS=0V			1	μ A
RDS(ON)	Drain-Source On-State Resistance ^a	VGS=10V, ID= 30A		1.6	2.0	m Ω
		VGS=4.5V, ID= 30A		2.45	3.0	
VSD	Diode Forward Voltage	IS=10A, VGS=0V		0.73	1.1	V
DYNAMIC						
Qg	Total Gate Charge(10V)	VDS=15V, VGS=10V, ID=150A		420		nC
Qg	Total Gate Charge(4.5V)	VDS=15V, VGS=4.5V, ID=150A		220		
Qgs	Gate-Source Charge			800		
Qgd	Gate-Drain Charge			100		
Ciss	Input capacitance	VDS=15V, VGS=0V, f=1.0MHz		3200		pF
Coss	Output Capacitance			1880		
Crss	Reverse Transfer Capacitance			1500		
Rg	Gate-Resistance	VDS=0V, VGS=0V, f=1MHz		0.6		Ω
td(on)	Turn-On Delay Time	VDD=15V, RL =15 Ω ID=1A, VGEN=4.5V RG=3 Ω		80		ns
tr	Turn-On Rise Time			75		
td(off)	Turn-Off Delay Time			141		
tf	Turn-Off Fall Time			68		

Note:

- a: Pulse test: pulse width \leq 300 μ s, duty cycle \leq 2%
- b: FORSEMI reserves the right to improve product design, functions and reliability without notice.
- c. Single pulse width limited by junction temperature $T_J(\text{MAX})=150^\circ\text{C}$.
- d. The R_{qJA} is the sum of the thermal impedance from junction to case R_{qJC} and case to ambient.
- e. The static characteristics in Figures 1 to 6 are obtained using \leq 300ms pulses, duty cycle 0.5% max.
- f. These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of $T_J(\text{MAX})=150^\circ\text{C}$. The SOA curve provides a single pulse rating.
- g. The maximum current rating is package limited.
- h. These tests are performed with the device mounted on 1 in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.

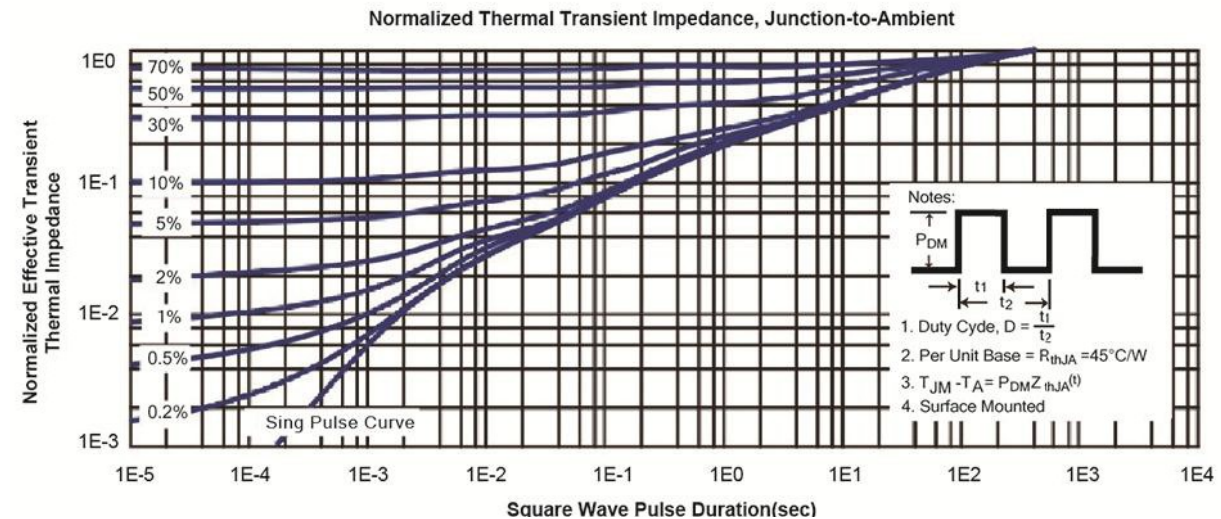
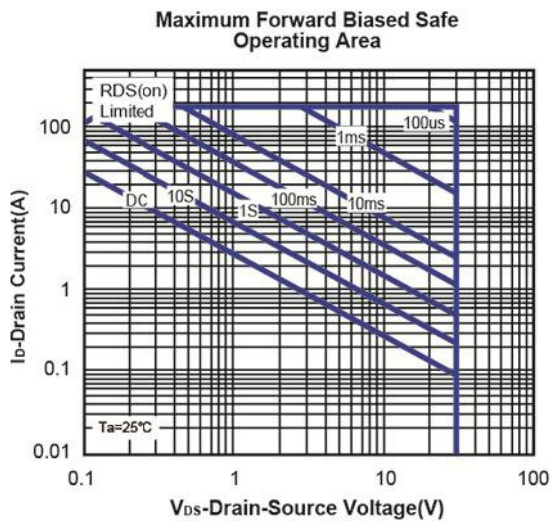
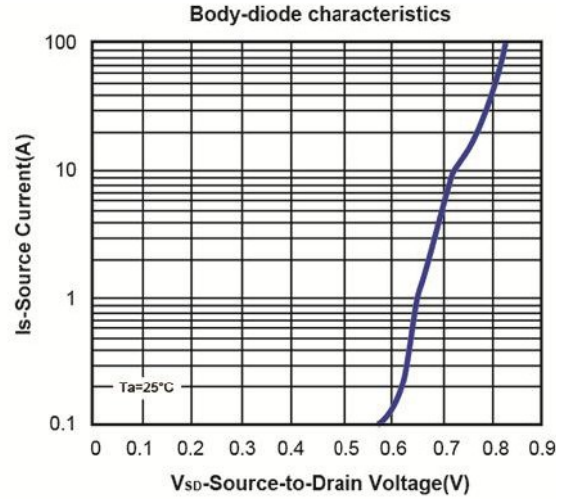
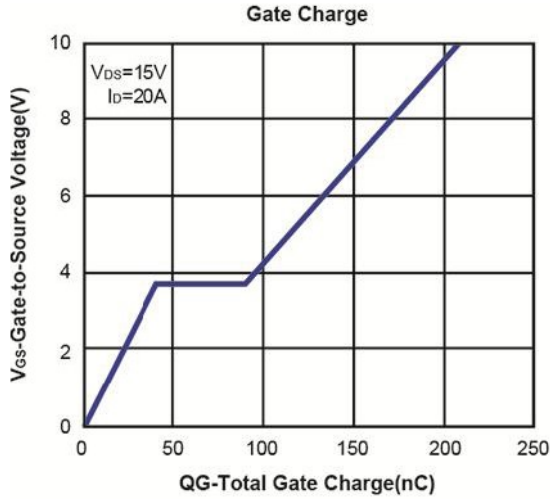


● Typical Characteristics



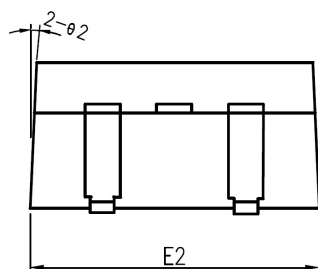
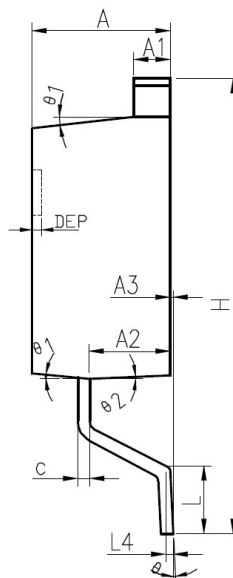
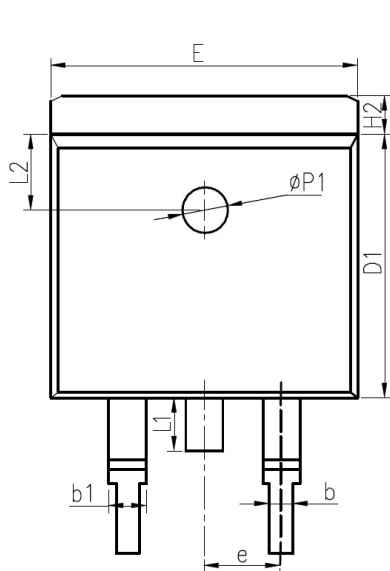


● TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS





● **PACKAGE TO263-2**



COMMON DIMENSIONS

SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.57	4.70	0.173	0.180	0.185
A1	1.22	1.27	1.32	0.048	0.050	0.052
A2	2.59	2.69	2.79	0.102	0.106	0.110
A3	0.00	0.10	0.20	0.000	0.004	0.008
b	0.77	0.813	0.90	0.030	0.032	0.035
b1	1.20	1.270	1.36	0.047	0.050	0.054
c	0.34	0.381	0.47	0.013	0.015	0.019
D1	8.60	8.70	8.80	0.339	0.343	0.346
E	10.00	10.16	10.26	0.394	0.400	0.404
E2	10.00	10.10	10.20	0.394	0.398	0.402
e	2.54 BSC			0.100 BSC		
H	14.70	15.10	15.50	0.579	0.594	0.610
H2	1.17	1.27	1.40	0.046	0.050	0.055
L	2.00	2.30	2.60	0.079	0.091	0.102
L1	1.45	1.55	1.70	0.057	0.061	0.067
L2	2.50 REF			0.098 REF		
L4	0.25 BSC			0.010 BSC		
	0°	5°	8°	0°	5°	8°
1	5°	7°	9°	5°	7°	9°
2	1°	3°	5°	1°	3°	5°
ΦP1	1.40	1.50	1.60	0.055	0.059	0.063
DEP	0.05	0.10	0.20	0.002	0.004	0.008