

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

FEATURES

$R_{DS(ON)} \leq 6m\Omega @ V_{GS}=10V$

$R_{DS(ON)} \leq 8m\Omega @ V_{GS}=4.5V$

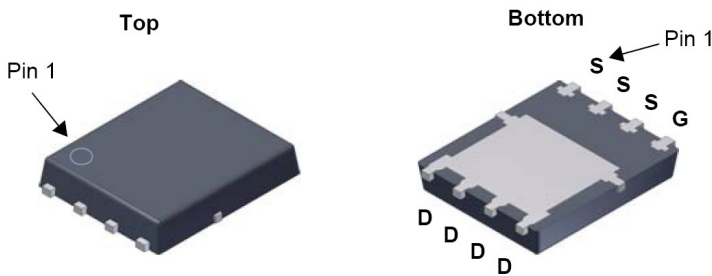
high density cell design for extremely low $R_{DS(ON)}$

Exceptional on-resistance and maximum DC current capability

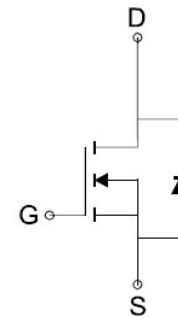
GENERAL DESCRIPTION

The FS4480 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



PDFN3.3×3.3-8L



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(TJ =150°C)*	ID	TA=25°C	30
		TA=70°C	23.5
Pulsed Drain Current	IDM	120	A
Maximum Power Dissipation*	PD	TA=25°C	3.1
		TA=70°C	2.0
Operating Junction Temperature	TJ	-55 to 150	°C
Thermal Resistance-Junction to Ambient*	RθJA	50	°C/W
Thermal Resistance-Junction to Lead*	RθJL	24	

* The device mounted on 1in² FR4 board with 2 oz copper

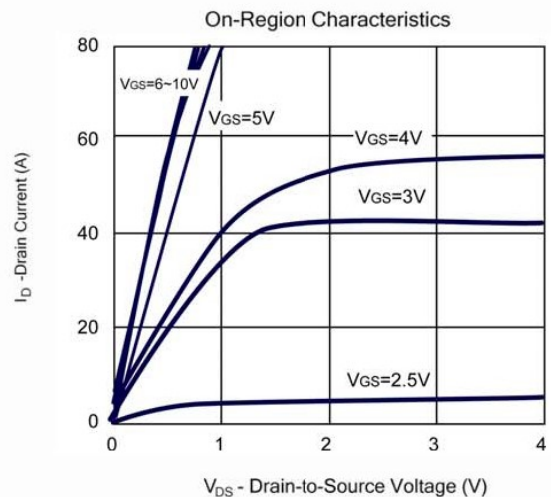
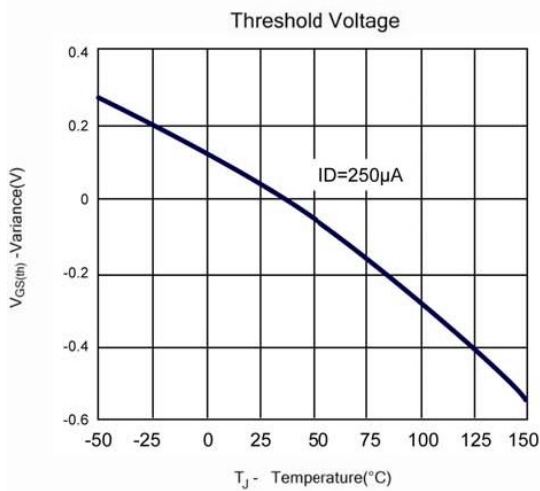
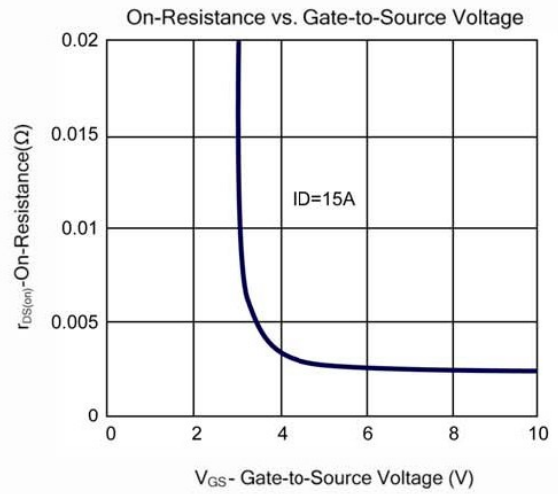
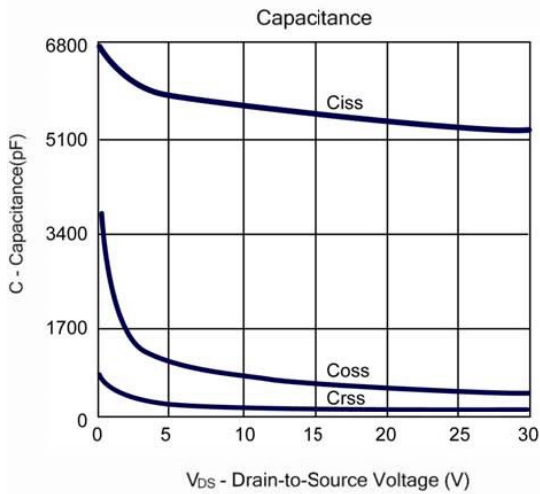
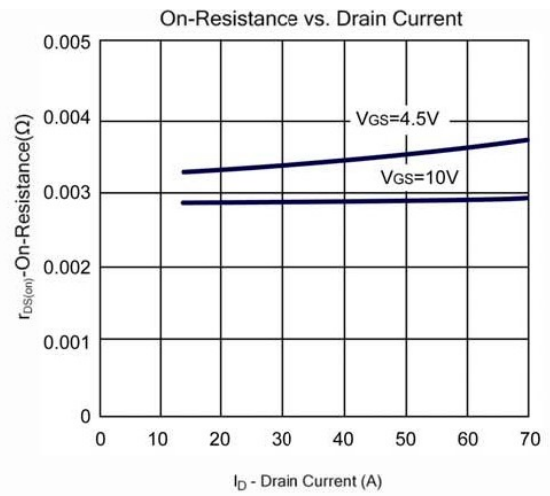
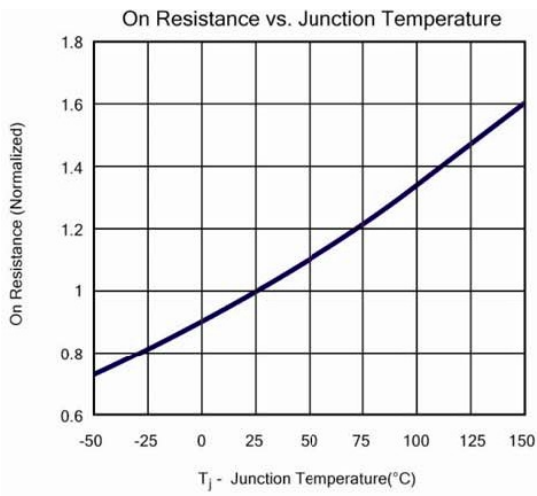
● **Electrical Characteristics** ($T_J=25^\circ\text{C}$ unless otherwise noted)

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	1.55		2.7	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= 10A		4.6	6.0	m Ω
		VGS=4.5V, ID= 7.5A		6.7	8.0	
VSD	Diode Forward Voltage	IS=2.7A, VGS=0V		0.72	1.1	V
DYNAMIC						
Qg	Total Gate Charge(10V)	VDS=15V, VGS=10V, ID=17A		55		nC
Qg	Total Gate Charge(4.5V)	VDS=15V, VGS=4.5V, ID=17A		29		
Qgs	Gate-Source Charge			10		
Qgd	Gate-Drain Charge			15		
Ciss	Input capacitance	VDS=15V, VGS=0V, f=1.0MHz		3200		pF
Coss	Output Capacitance			550		
Crss	Reverse Transfer Capacitance			210		
Rg	Gate-Resistance	VDS=0V, VGS=0V, f=1MHz		1.2		Ω
td(on)	Turn-On Delay Time	VDD=15V, RL =15 Ω ID=1A, VGEN=10V RG=6 Ω		23		ns
tr	Turn-On Rise Time			12		
td(off)	Turn-Off Delay Time			86		
tf	Turn-Off Fall Time			12		

Note:

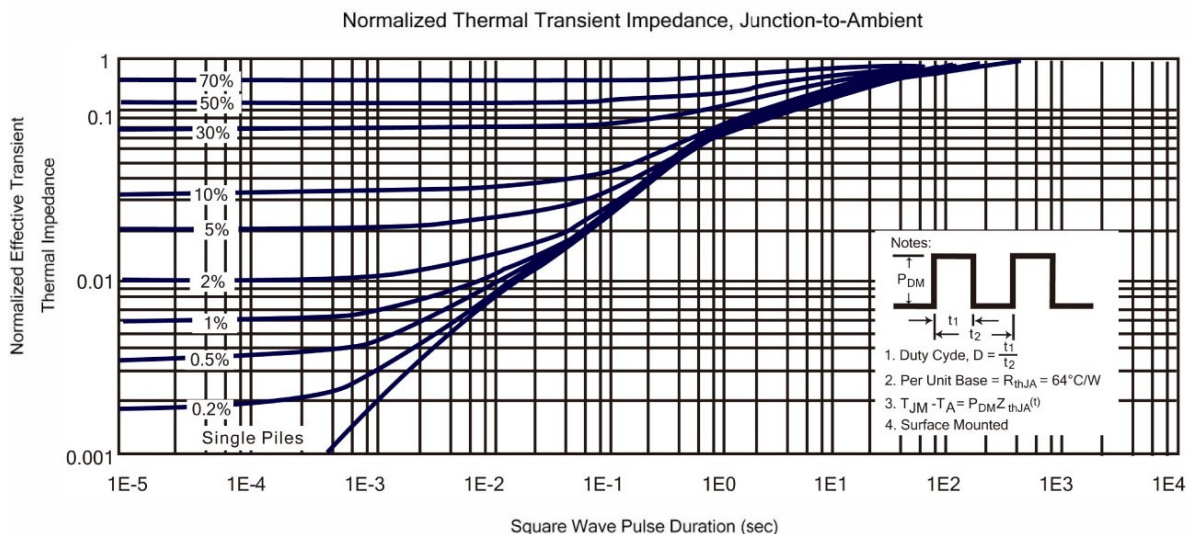
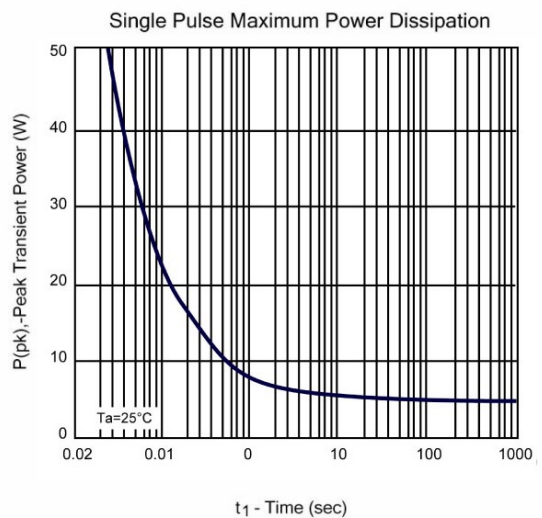
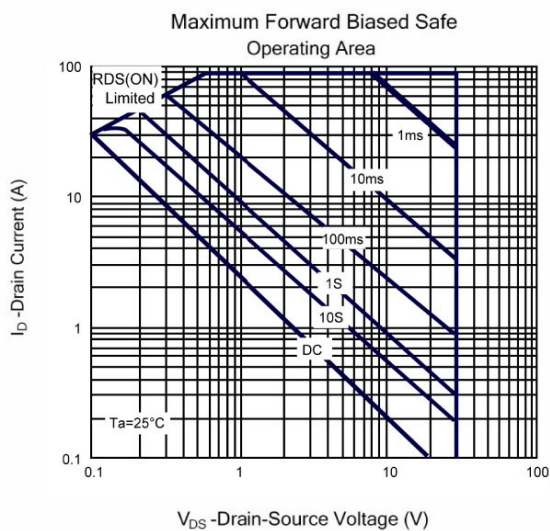
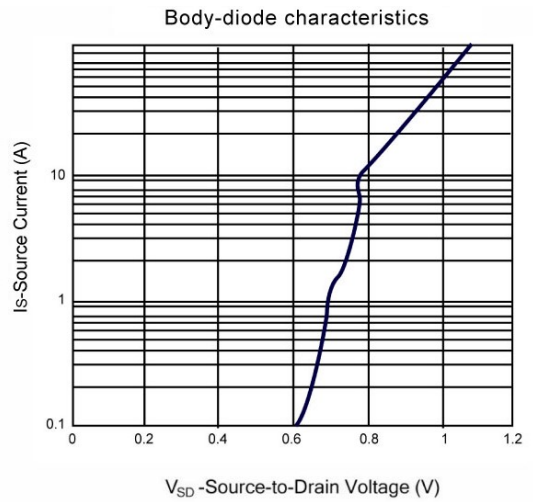
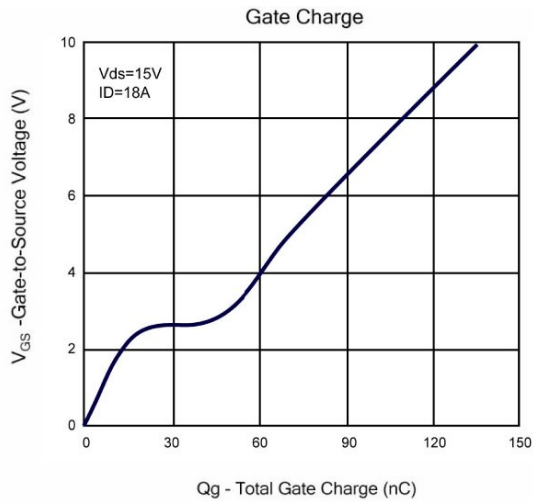
- The value of RqJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25° C. The Power dissipation PDSM is based on R qJA t \leq 10s and the maximum allowed junction temperature of 150° C. The value in any given application depends on the user's specific board design.
- The power dissipation PD is based on TJ(MAX)=150° C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
- Single pulse width limited by junction temperature TJ(MAX)=150° C.
- The RqJA is the sum of the thermal impedance from junction to case RqJC and case to ambient.
- The static characteristics in Figures 1 to 6 are obtained using <300ms pulses, duty cycle 0.5% max.
- 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 TJ(MAX)=150° C. The SOA curve provides a single pulse rating.
- The maximum current rating is package limited.
- These tests are performed with the device mounted on 1 in2 FR-4 board with 2oz. Copper, in a still air environment with TA=25° C.

FS4480



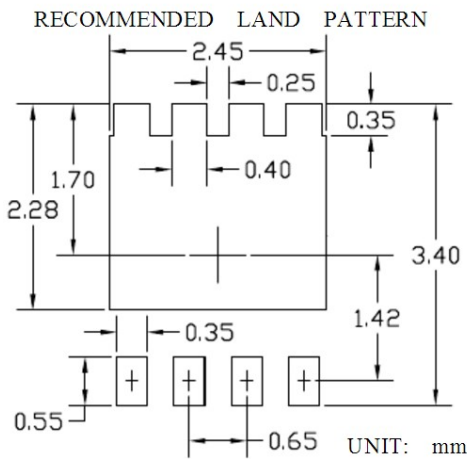
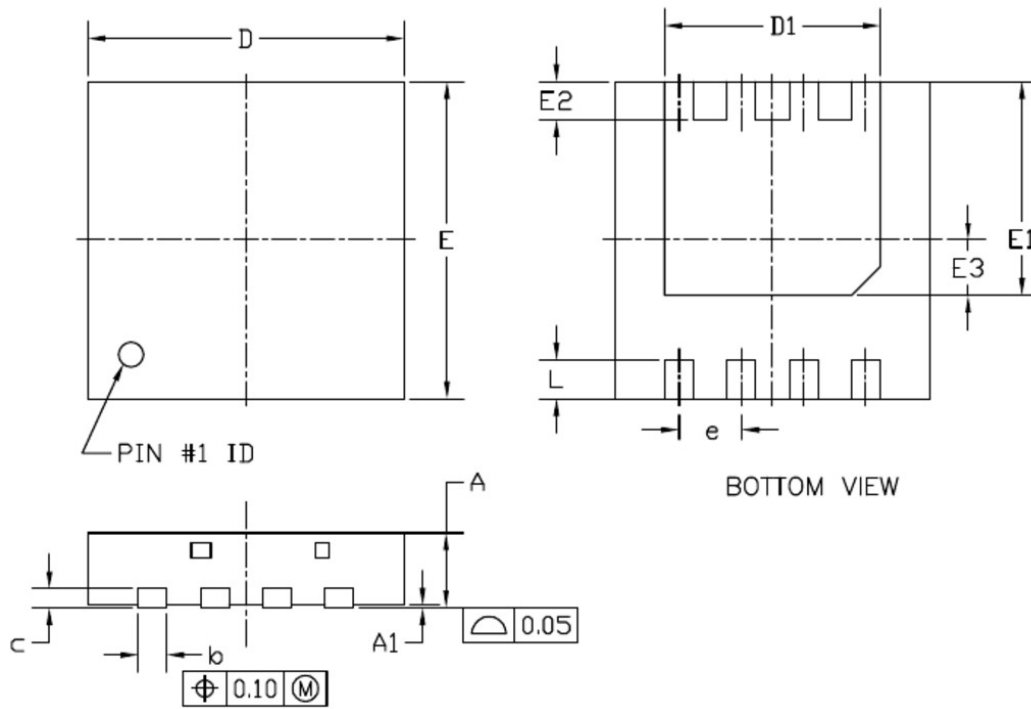
FS4480

● TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



FS4480

● PACKAGE PDFN3.3×3.3-8L



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031
A1	—	—	0.05	—	—	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.15	0.25	0.004	0.006	0.010
D	3.20	3.30	3.40	0.126	0.130	0.134
D1	2.15	2.25	2.35	0.085	0.089	0.093
E	3.20	3.30	3.40	0.126	0.130	0.134
E1	2.15	2.25	2.35	0.085	0.089	0.093
E2	0.30	0.40	0.50	0.012	0.016	0.020
E3	0.48	0.58	0.68	0.019	0.023	0.027
e	0.65 BSC			0.026 BSC		
L	0.30	0.40	0.50	0.012	0.016	0.020