



Description

The FDS6679Z uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.



SOP-8

General Features

$V_{DS} = -30V$ $I_D = -15A$

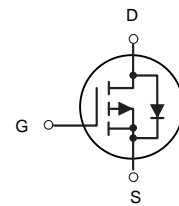
$R_{DS(ON)} < 10m\Omega @ V_{GS} = -10V$

Application

Battery protection

Load switch

Uninterruptible power supply



P-Channel MOSFET

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
FDS6679Z	SOP-8	HXY MOSFET	3000

Absolute Maximum Ratings ($T_c=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_A = 25^\circ C$	Drain Current ³ , $V_{GS} @ 10V$	-15	A
$I_D @ T_A = 70^\circ C$	Drain Current ³ , $V_{GS} @ 10V$	-10	A
I_{DM}	Pulsed Drain Current ¹	-60	A
$P_D @ T_A = 25^\circ C$	Total Power Dissipation	25.6	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
R_{thj-c}	Maximum Thermal Resistance, Junction-ambient ³	4.9	$^\circ C/W$



Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-30V,	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0A	---	---	±100	nA
V_{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	-1	-1.6	-2.5	V
R_{DS(on)}	Drain-Source On Resistance	V _{GS} =-10V, I _D =-8A	---	7.5	10	mΩ
		V _{GS} =-4.5V, I _D =-6A	---	11.6	16	
C_{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	3550	---	pF
C_{oss}	Output Capacitance					
C_{rss}	Reverse Transfer Capacitance					
t_{d(on)}	Turn-On Delay Time ^{3,4}	V _{DD} =-15V, V _{GS} =-10V I _D =-20A, R _{GEN} =2.5 Ω	---	14	---	ns
t_r	Rise Time ^{3,4}		---	19	---	ns
t_{d(off)}	Turn-Off Delay Time ^{3,4}		---	65	---	ns
t_f	Fall Time ^{3,4}		---	50	---	ns
Q_g	Total Gate Charge ^{3,4}	V _{DS} =-15V, V _{GS} =-10V, I _D =-20A	---	35	---	nC
Q_{gs}	Gate-Source Charge ^{3,4}		---	6.2	---	nC
Q_{gd}	Gate-Drain "Miller" Charge ^{3,4}		---	9.2	---	nC
I_S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	-40	A
I_{SM}	Pulsed Source Current		---	---	-160	A
V_{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-30A	---	-0.8	-1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25°C, V_{DD}=-15V, V_G=-10V, L=0.5mH, R_G=25Ω, I_{AS}=-22A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%



Typical Characteristics: (Tc=25°C unless otherwise noted)

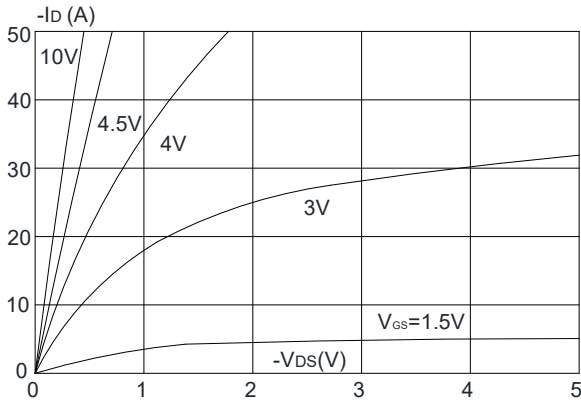


Figure 1: Output Characteristics

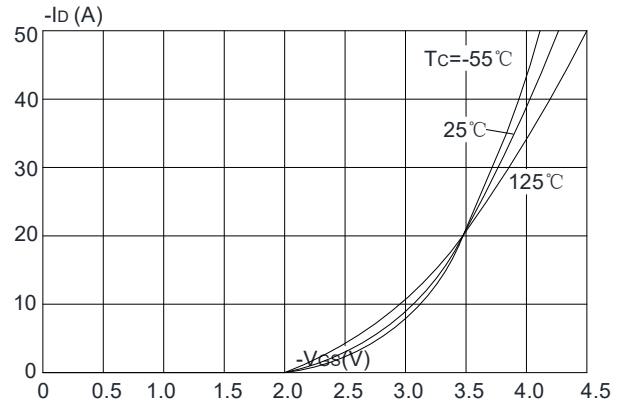


Figure 2: Typical Transfer Characteristics

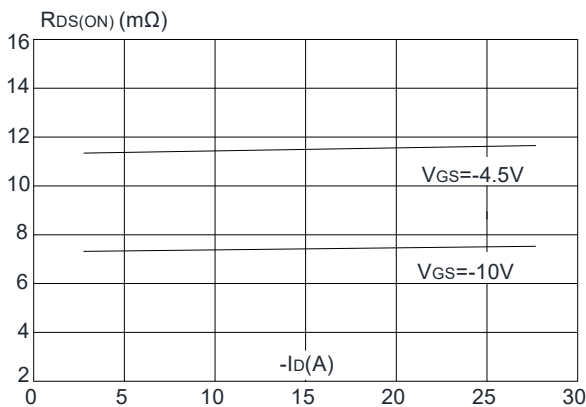


Figure 3: On-resistance vs. Drain Current

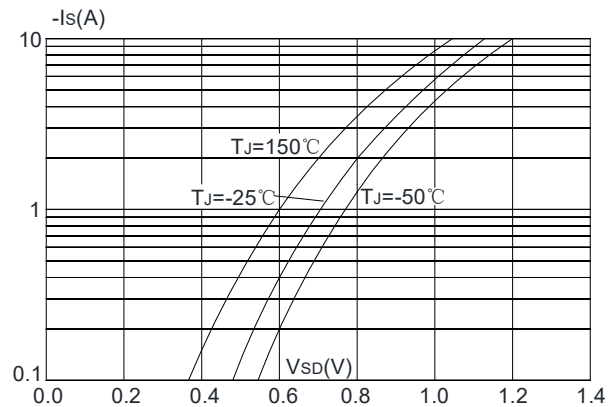


Figure 4: Body Diode Characteristics

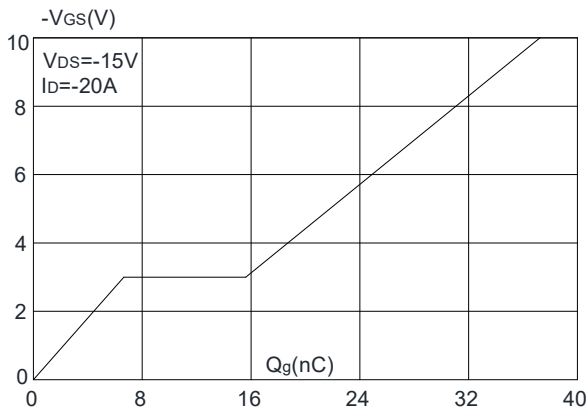


Figure 5: Gate Charge Characteristics

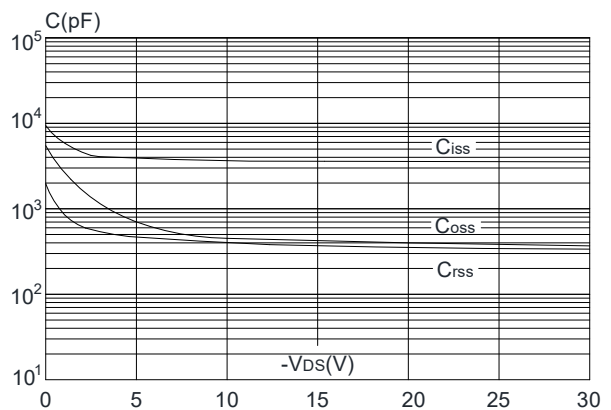


Figure 6: Capacitance Characteristics

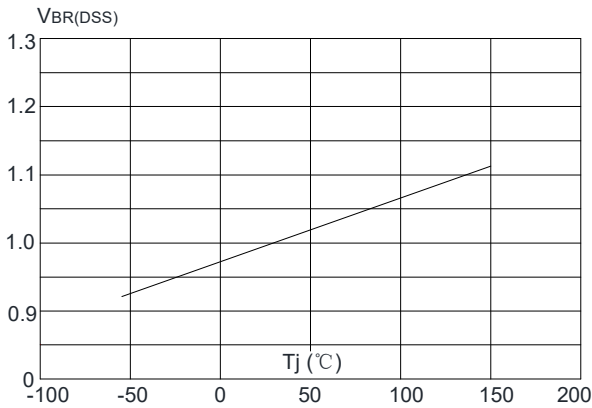


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

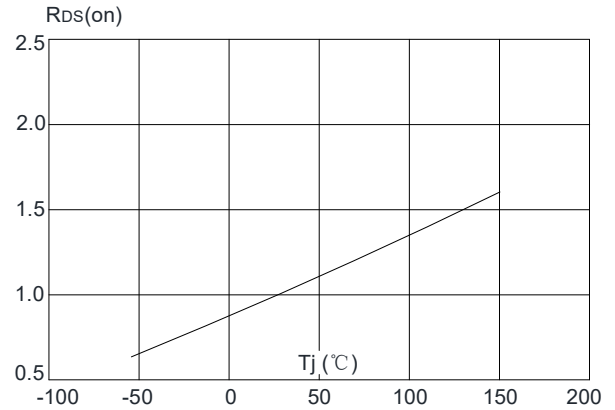


Figure 8: Normalized on Resistance vs. Junction Temperature

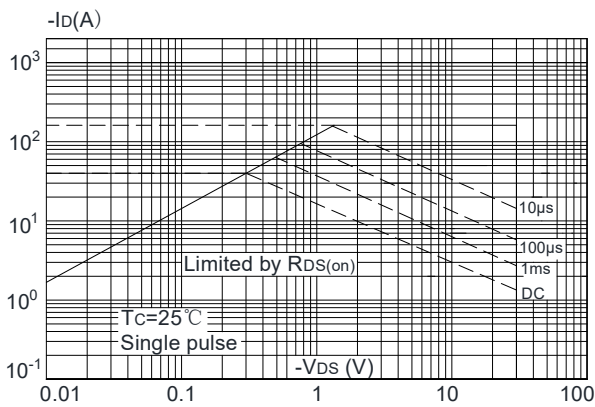


Figure 9: Maximum Safe Operating Area

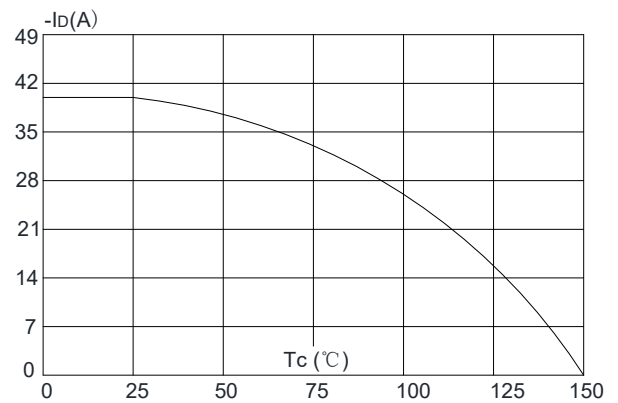


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

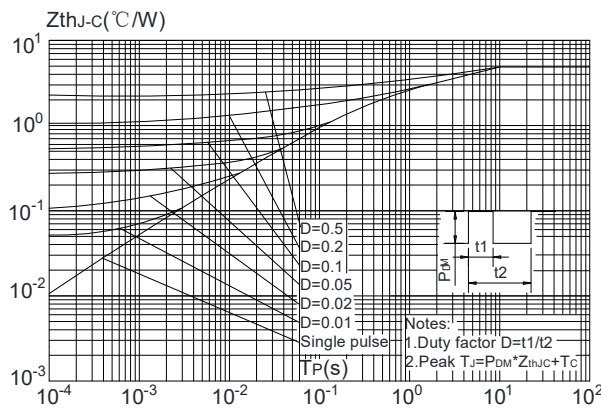
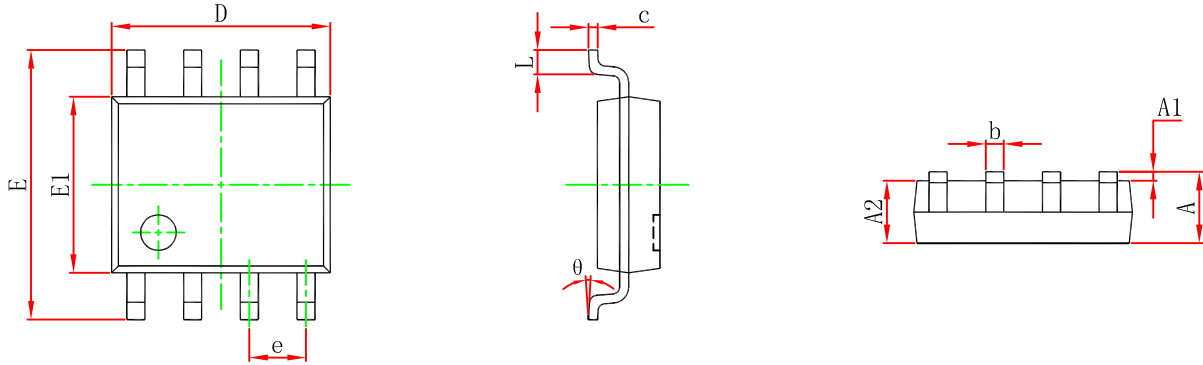


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



SOP-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.



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