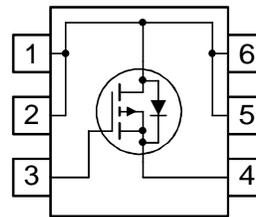
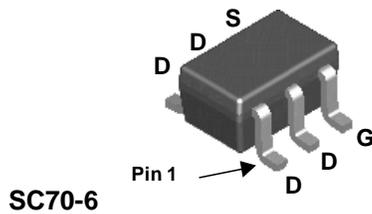


Applications

- Load switch
- Power management
- DC/DC converter

Features

- -1.5 A, -20 V. $R_{DS(ON)} = 0.145 \Omega @ V_{GS} = -4.5 V$
 $R_{DS(ON)} = 0.210 \Omega @ V_{GS} = -2.5 V$
- Low gate charge
- High performance trench technology for extremely low $R_{DS(ON)}$
- Compact industry standard SC70-6 surface mount package



Absolute Maximum Ratings T_A=25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
V _{DSS}	Drain-Source Voltage	-20	V
V _{GSS}	Gate-Source Voltage	± 12	V
I _D	Drain Current – Continuous (Note 1a)	-1.5	A
	– Pulsed	-6	
P _D	Power Dissipation for Single Operation (Note 1a)	0.75	W
	(Note 1b)	0.48	
T _J , T _{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

Thermal Characteristics

R _{θJA}	Thermal Resistance, Junction-to-Ambient (Note 1b)	260	°C/W
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Package Marking and Ordering Information

Device Marking	Device	Reel Size	Tape width	Quantity
.28	FDG328P	7"	8mm	3000 units



Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Off Characteristics

BV_{DSS}	Drain–Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-20			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Breakdown Voltage Temperature Coefficient	$I_D = -250\ \mu\text{A}$, Referenced to 25°C		-9		mV/ $^\circ\text{C}$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -16\text{ V}, V_{GS} = 0\text{ V}$			-1	μA
I_{GSSF}	Gate–Body Leakage, Forward	$V_{GS} = 12\text{ V}, V_{DS} = 0\text{ V}$			100	nA
I_{GSSR}	Gate–Body Leakage, Reverse	$V_{GS} = -12\text{ V}, V_{DS} = 0\text{ V}$			-100	nA

On Characteristics (Note 2)

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.6		-1.5	V
$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	Gate Threshold Voltage Temperature Coefficient	$I_D = -250\ \mu\text{A}$, Referenced to 25°C		3		mV/ $^\circ\text{C}$
$R_{DS(on)}$	Static Drain–Source On–Resistance	$V_{GS} = -4.5\text{ V}, I_D = -1.5\text{ A}$ $V_{GS} = -2.5\text{ V}, I_D = -1.2\text{ A}$ $V_{GS} = -4.5\text{ V}, I_D = -1.5\text{ A}, T_J = 125^\circ\text{C}$		120 169 156	145 210 203	m Ω
$I_{D(on)}$	On–State Drain Current	$V_{GS} = -4.5\text{ V}, V_{DS} = -5\text{ V}$	-3			A
g_{FS}	Forward Transconductance	$V_{DS} = -5\text{ V}, I_D = -1.5\text{ A}$		5		S

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = -10\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$		337		pF
C_{oss}	Output Capacitance			88		pF
C_{rss}	Reverse Transfer Capacitance			51		pF

Switching Characteristics (Note 2)

$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = -10\text{ V}, I_D = 1\text{ A},$ $V_{GS} = -4.5\text{ V}, R_{GEN} = 6\ \Omega$		9	18	ns
t_r	Turn–On Rise Time			12	22	ns
$t_{d(off)}$	Turn–Off Delay Time			10	20	ns
t_f	Turn–Off Fall Time			5	10	ns
Q_g	Total Gate Charge	$V_{DS} = -10\text{ V}, I_D = -1.5\text{ A},$ $V_{GS} = -4.5\text{ V}$		3.7	6	nC
Q_{gs}	Gate–Source Charge			0.7		nC
Q_{gd}	Gate–Drain Charge			1.3		nC

Drain–Source Diode Characteristics and Maximum Ratings

I_S	Maximum Continuous Drain–Source Diode Forward Current			-0.62		A
V_{SD}	Drain–Source Diode Forward Voltage	$V_{GS} = 0\text{ V}, I_S = -0.62\text{ A}$ (Note 2)		-0.7	-1.2	V

Notes:

1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.

- a.) 170°W when mounted on a 1 in^2 pad of 2 oz. copper.
- b.) 260°W when mounted on a minimum pad.

2. Pulse Test: Pulse Width < $300\ \mu\text{s}$, Duty Cycle < 2.0%