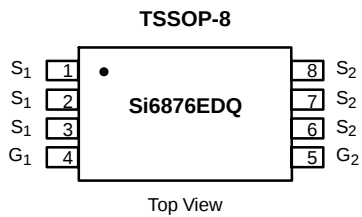




Bi-Directional N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{S1S2} (V)	$r_{S1S2(on)}$ (Ω)	I_{S1S2} (A)
30	0.025 @ $V_{GS} = 10$ V	6.2
	0.030 @ $V_{GS} = 4.5$ V	5.7
	0.050 @ $V_{GS} = 2.5$ V	4.5

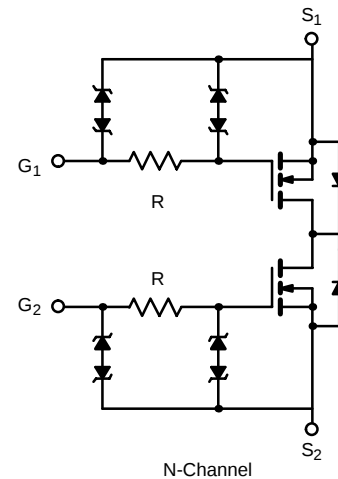


FEATURES

- TrenchFET® Power MOSFET
- Ultra-Low $r_{SS(on)}$
- 4-kV ESD Protection

APPLICATIONS

- Battery Protection Circuitry
 - 1-2 Cell Li+/LiP



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	10 secs	Steady State
Source1—Source2 Voltage		V_{S1S2}	30	
Gate-Source Voltage		V_{GS}	± 12	
Continuous Source1—Source2 Current ($T_J = 150^\circ\text{C}$) ^a	$T_A = 25^\circ\text{C}$	I_{S1S2}	6.2	5.0
	$T_A = 70^\circ\text{C}$		5.0	4.0
Pulsed Source1-Source2 Current		I_{SM}	30	
Maximum Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	1.78	1.19
	$T_A = 70^\circ\text{C}$		1.14	0.76
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Typical	Maximum
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec.	R_{thJA}	55	70
	Steady State		85	105
Maximum Junction-to-Foot (Source) ^a	Steady State	R_{thJF}	35	45

Notes

- a. Surface Mounted on FR4 Board.
b. $t \leq 10$ sec.

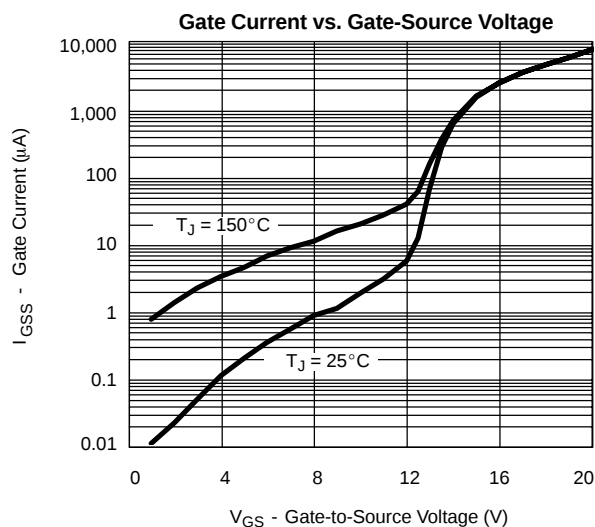
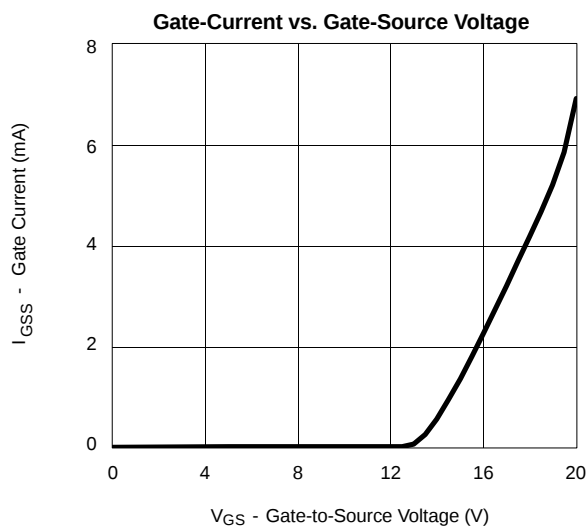
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

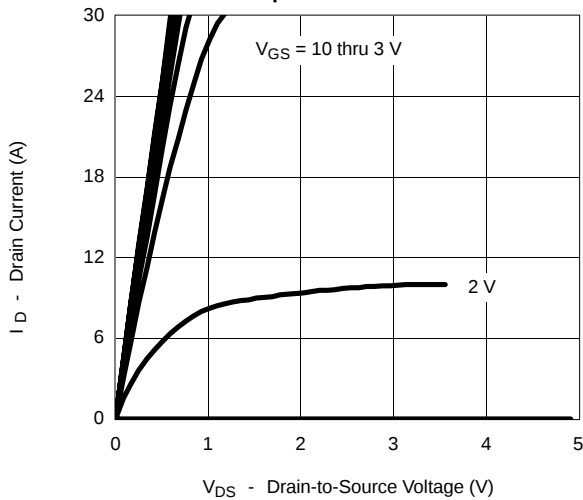
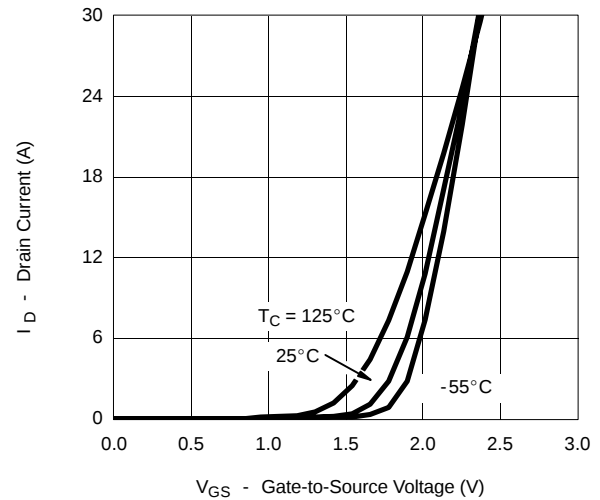
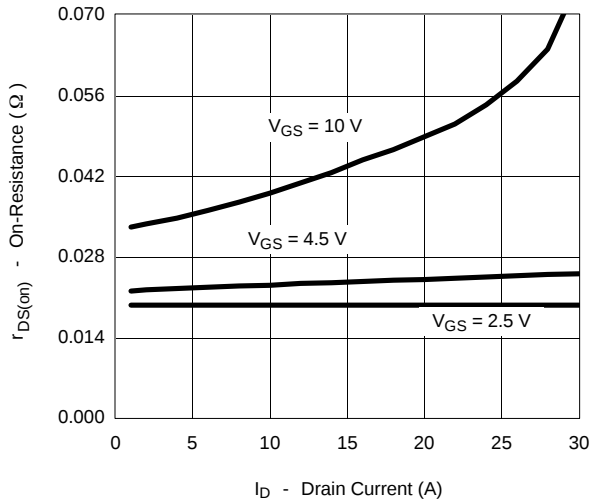
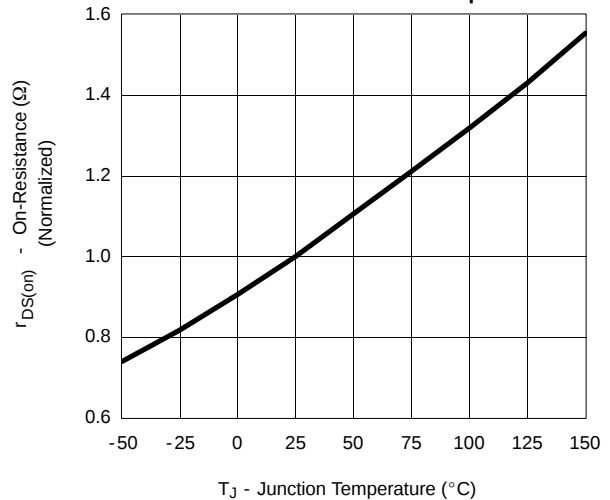
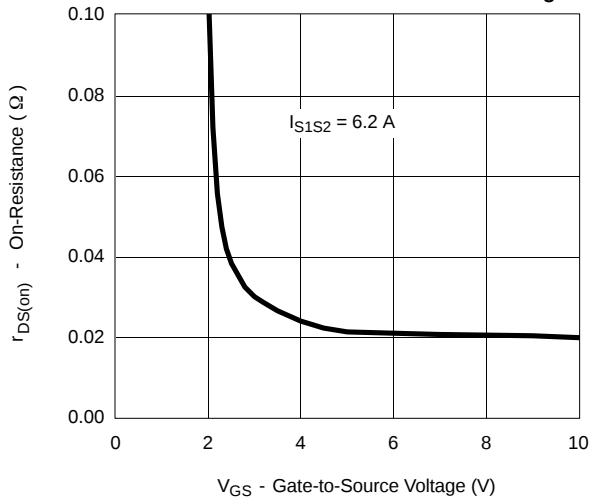
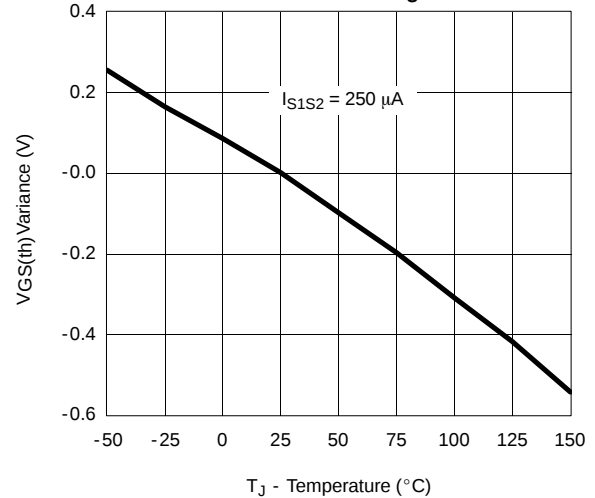
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{A}$	0.45		1.5	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 4.5\ \text{V}$			± 500	nA
		$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 12\ \text{V}$			± 10	mA
Zero Gate Voltage Source Current	I_{S1S2}	$V_{DS} = 24\ \text{V}$, $V_{GS} = 0\ \text{V}$			1	μA
		$V_{DS} = 24\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 70^\circ\text{C}$			25	
On-State Source Current ^a	$I_{S(on)}$	$V_{DS} \geq 5\ \text{V}$, $V_{GS} = 4.5\ \text{V}$	20			A
Source1-Source2 On-State Resistance ^a	$r_{S1S2(on)}$	$V_{GS} = 10\ \text{V}$, $I_D = 6.2\ \text{A}$		0.020	0.025	Ω
		$V_{GS} = 4.5\ \text{V}$, $I_D = 5.7\ \text{A}$		0.024	0.030	
		$V_{GS} = 2.5\ \text{V}$, $I_D = 4.5\ \text{A}$		0.037	0.050	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 10\ \text{V}$, $I_D = 6.2\ \text{A}$		39		S
Dynamic^b						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15\ \text{V}$, $R_L = 15\ \Omega$ $I_D \cong 1\ \text{A}$, $V_{GEN} = 10\ \text{V}$, $R_G = 6\ \Omega$		1.3	2.5	μs
Rise Time	t_r			3	6	
Turn-Off Delay Time	$t_{d(off)}$			10	20	
Fall Time	t_f			5.2	10	

Notes

a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)****Output Characteristics****Transfer Characteristics****On-Resistance vs. Drain Current****On-Resistance vs. Junction Temperature****On-Resistance vs. Gate-to-Source Voltage****Threshold Voltage**

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)
