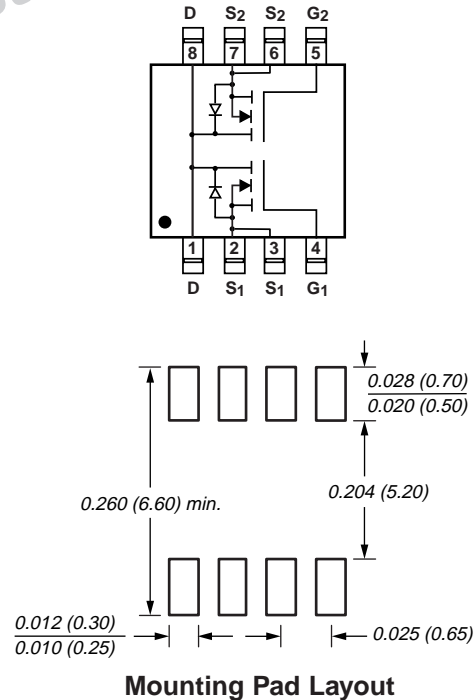
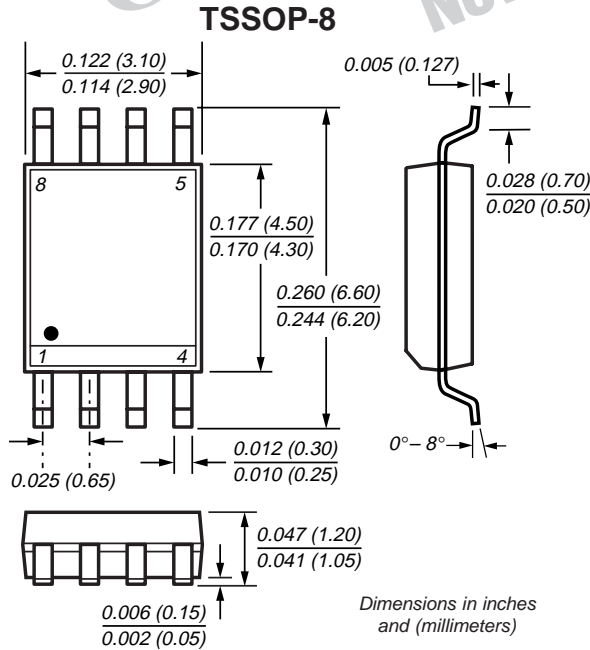


Common-Drain Dual N-Channel MOSFET

Low $V_{GS(th)}$ V_{DS} 20V $R_{DS(ON)}$ 22m Ω I_D 6.2A

TRENCH GENFET®

New Product



Mechanical Data

Case: TSSOP-8 Package

Terminals: Leads solderable per MIL-STD-750, Method 2026

High temperature soldering guaranteed: 250°C/10 seconds at terminals

Mounting Position: Any

Weight: 0.5g

Features

- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Specially Designed for Li-ion battery packs use
- Designed for battery-switch applications

Maximum Ratings and Thermal Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	20	V	
Gate-Source Voltage	V_{GS}	± 12		
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ⁽¹⁾	I_D	6.2	A	
Pulsed Drain Current	I_{DM}	30	A	
Maximum Power Dissipation ⁽¹⁾	P_D	$T_A = 25^\circ\text{C}$	1.5	W
		$T_A = 70^\circ\text{C}$	0.96	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$	
Maximum Junction-to-Ambient ⁽¹⁾ Thermal Resistance	$R_{\theta JA}$	83	$^\circ\text{C/W}$	

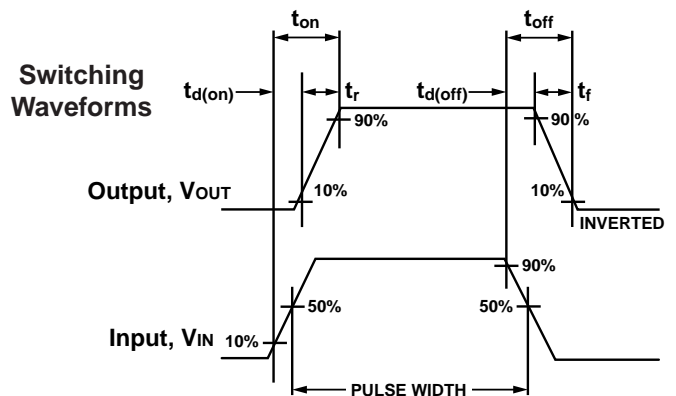
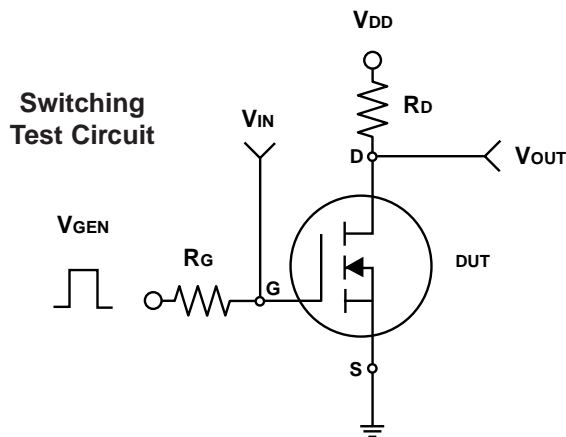
Notes: (1) Surface mounted on FR4 board, $t \leq 10$ sec.

Common-Drain Dual N-Channel MOSFET

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	20	–	–	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6	–	–	V
Gate Body Leakage	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$	–	–	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	–	–	1	μA
On-State Drain Current ⁽¹⁾	$I_{D(on)}$	$V_{DS} \geq 5V, V_{GS} = 4.5V$	30	–	–	A
Drain-Source On-State Resistance ⁽¹⁾	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 6.2A$	–	17.5	22	m Ω
		$V_{GS} = 2.5V, I_D = 5.3A$	–	25	30	
Forward Transconductance ⁽¹⁾	g_{fs}	$V_{DS} = 10V, I_D = 6.2A$	–	26.5	–	S
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 10V, V_{GS} = 4.5V$ $I_D = 6.2A$	–	14	20	nC
Gate-Source Charge	Q_{gs}		–	2.2	–	
Gate-Drain Charge	Q_{gd}		–	3	–	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V, R_L = 10\Omega$ $I_D = 1A, V_{GEN} = 4.5V$ $R_G = 6\Omega$	–	11	30	ns
Turn-On Rise Time	t_r		–	15	50	
Turn-Off Delay Time	$t_{d(off)}$		–	43	100	
Fall Time	t_f		–	22	50	
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V$ $f = 1.0\text{ MHz}$	–	1240	–	pF
Output Capacitance	C_{oss}		–	200	–	
Reverse Transfer Capacitance	C_{rss}		–	120	–	
Source-Drain Diode						
Maximum Diode Forward Current	I_S	–	–	–	1.7	A
Diode Forward Voltage	V_{SD}	$I_S = 6.2A, V_{GS} = 0V$	–	0.8	1.2	V

Note: (1) Pulse test; pulse width $\leq 300\ \mu s$, duty cycle $\leq 2\%$



Common-Drain Dual N-Channel MOSFET

Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 – Output Characteristics

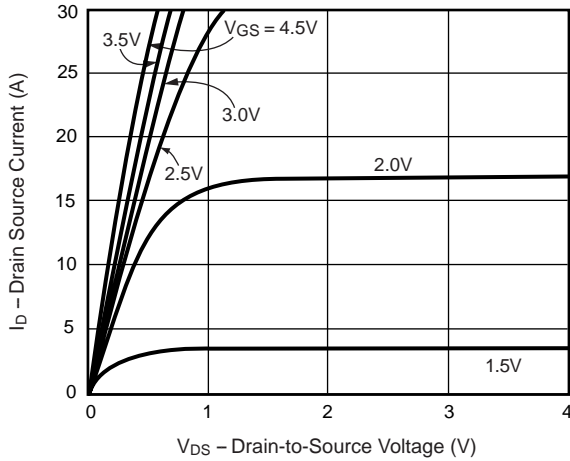


Fig. 2 – Transfer Characteristics

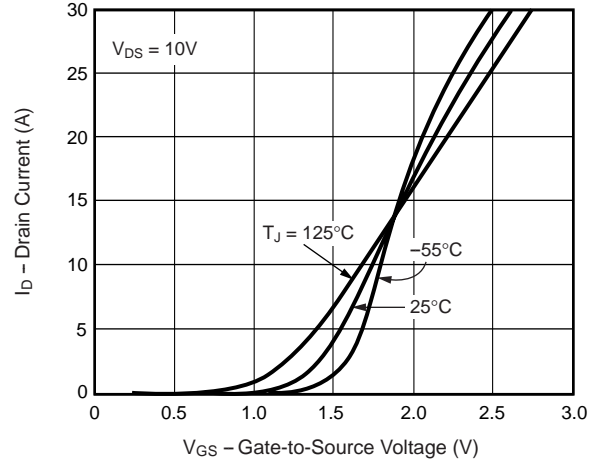


Fig. 3 – Threshold Voltage vs. Temperature

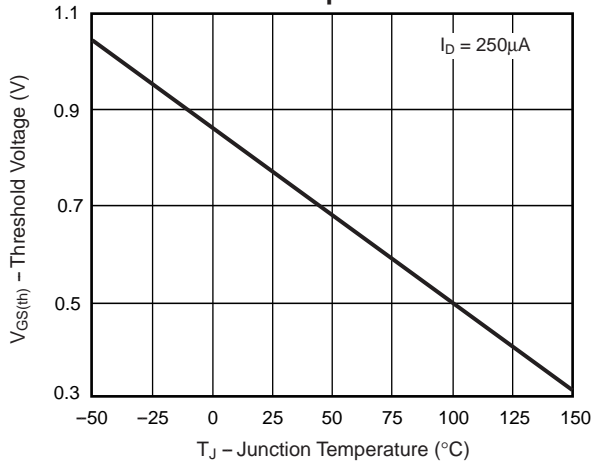


Fig. 4 – On-Resistance vs. Drain Current

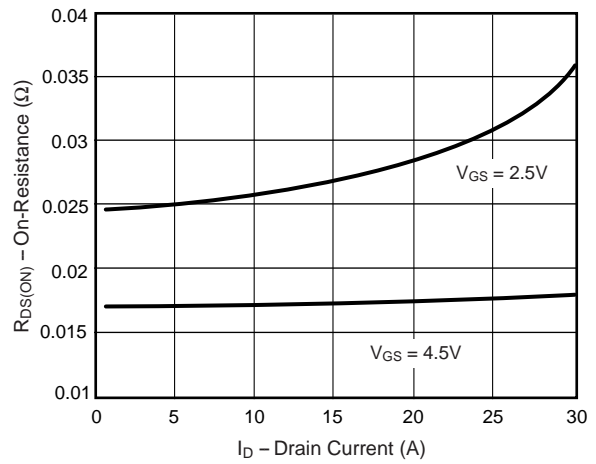
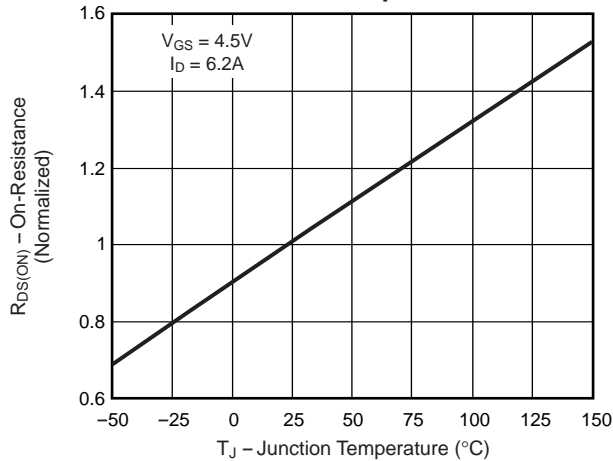


Fig. 5 – On-Resistance vs. Junction Temperature



Common-Drain Dual N-Channel MOSFET

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 6 – On-Resistance vs. Gate-to-Source Voltage

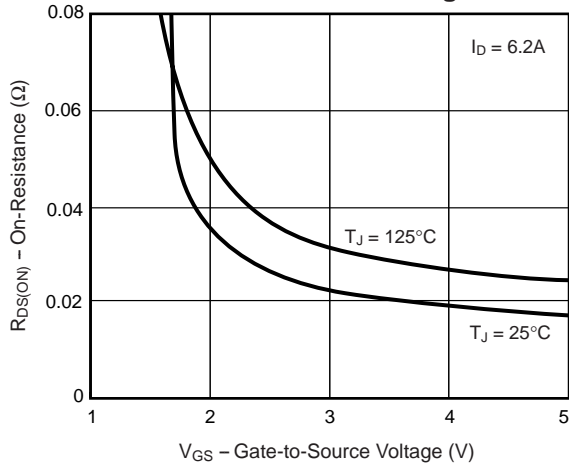


Fig. 7 – Gate Charge

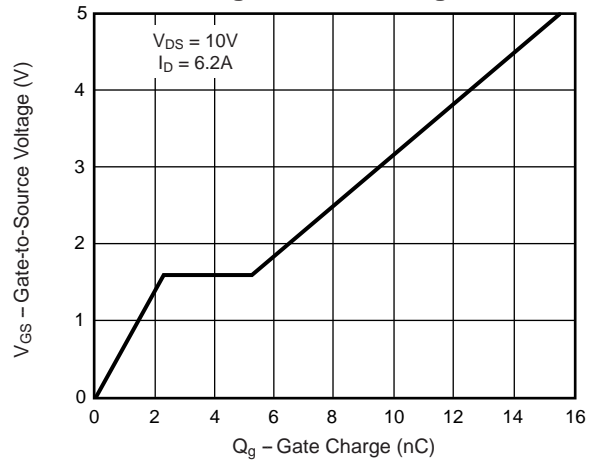


Fig. 8 – Capacitance

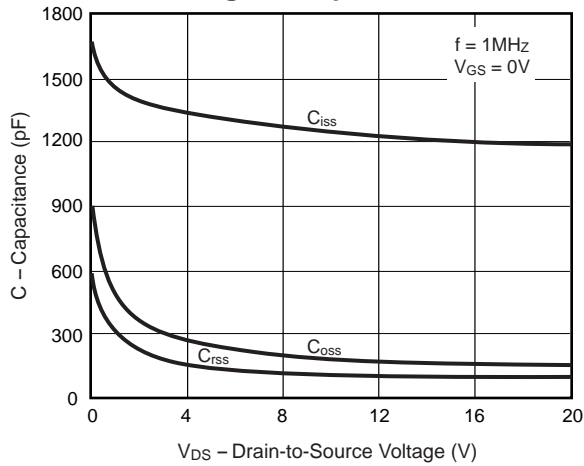
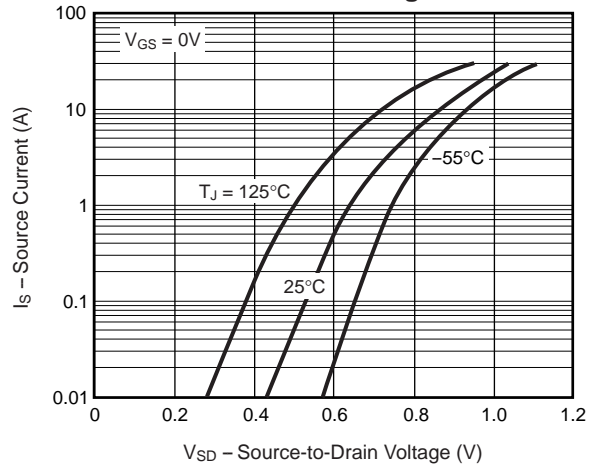


Fig. 9 – Source-Drain Diode Forward Voltage



Common-Drain Dual N-Channel MOSFET

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 10 – Breakdown Voltage vs. Junction Temperature

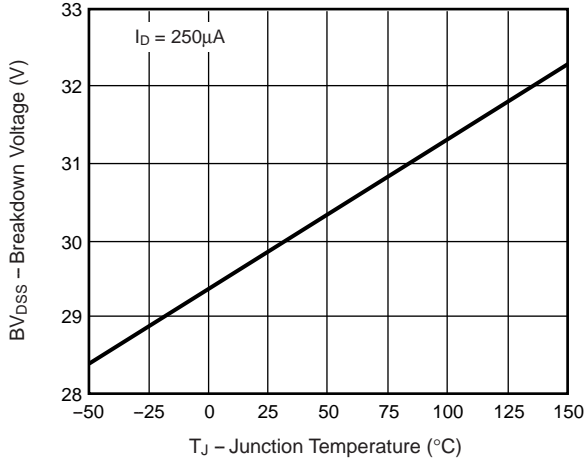


Fig. 11 – Transient Thermal Impedance

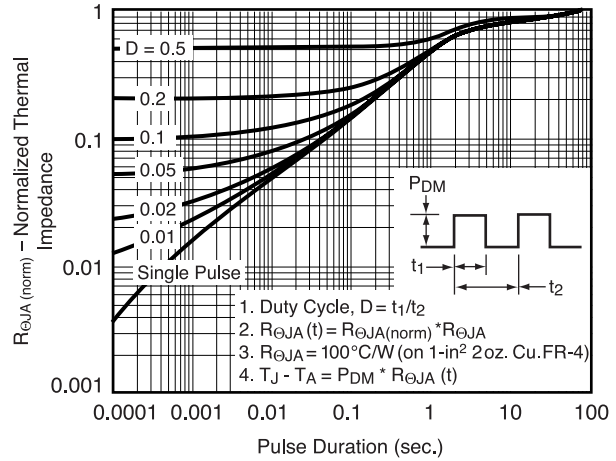


Fig. 12 – Power vs. Pulse Duration

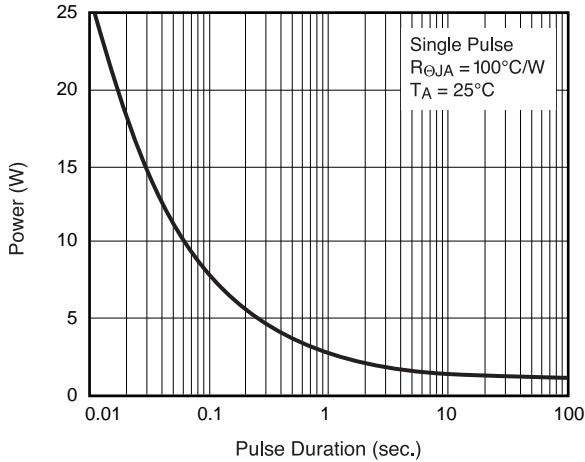


Fig. 13 – Maximum Safe Operating Area

