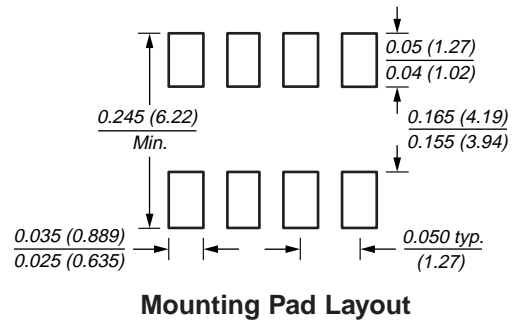
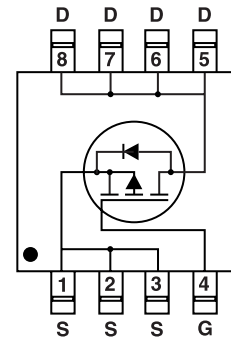
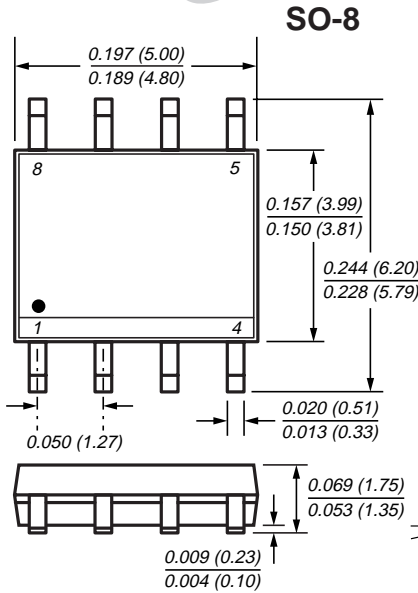


TRENCH GENFET®

P-Channel Enhancement-Mode MOSFET

$V_{DS} - 30V$ $R_{DS(ON)} 20m\Omega$ $I_D - 8.0A$



Mechanical Data

Case: SO-8 molded plastic body
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 Low Voltage DC/DC Converters
- Fast Switching for High Efficiency

Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current	I _D	-8.0	A
Pulsed Drain Current	I _{DM}	-50	
Maximum Power Dissipation	P _D	T _A = 25°C 2.5	W
		T _A = 70°C 1.6	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150	°C
Maximum Junction-to-Ambient Thermal Resistance ⁽¹⁾	R _{θJA}	50	°C/W

Note: (1) Surface Mounted on FR4 Board, t ≤ 10 sec.

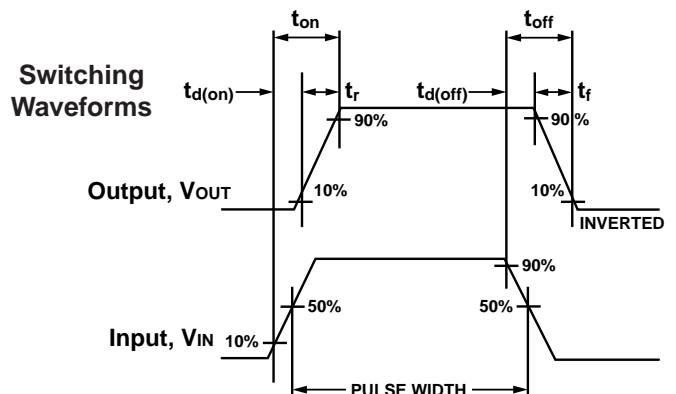
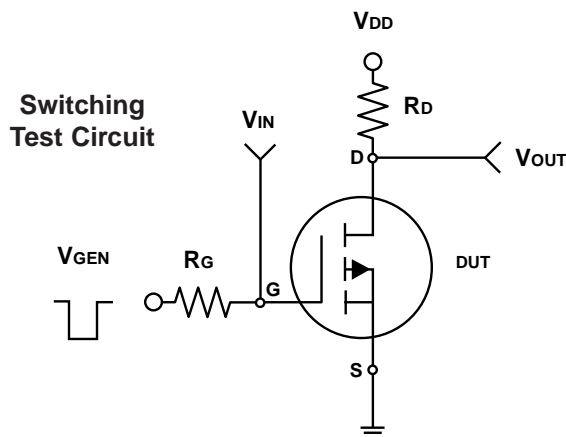
P-Channel Enhancement-Mode MOSFET

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-1.0	-	-3.0	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$	-	-	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$	-	-	-1.0	μA
On-State Drain Current ⁽¹⁾	$I_{D(on)}$	$V_{DS} \geq -5\text{V}, V_{GS} = -10\text{V}$	-40	-	-	A
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	-30	-	-	V
Drain-Source On-State Resistance ⁽¹⁾	$R_{DS(on)}$	$V_{GS} = -10\text{V}, I_D = -8.0\text{A}$	-	15.3	20	m Ω
		$V_{GS} = -4.5\text{V}, I_D = -5.0\text{A}$	-	25.3	35	
Forward Transconductance ⁽¹⁾	g_{fs}	$V_{DS} = -15\text{V}, I_D = -8.0\text{A}$	-	22	-	S
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = -15\text{V}, V_{GS} = -10\text{V}$ $I_D = -4.6\text{A}$	-	54	60	nC
Gate-Source Charge	Q_{gs}		-	8.5	-	
Gate-Drain Charge	Q_{gd}		-	10.3	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -15\text{V}, R_L = 15\Omega$ $I_D \approx -1\text{A}, V_{GEN} = -10\text{V}$ $R_G = 6\Omega$	-	24	30	ns
Rise Time	t_r		-	12	30	
Turn-Off Delay Time	$t_{d(off)}$		-	78	120	
Fall Time	t_f		-	37	80	
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$	-	2520	-	pF
Output Capacitance	C_{oss}	$V_{DS} = -15\text{V}$	-	490	-	
Reverse Transfer Capacitance	C_{rss}	$f = 1.0\text{MHz}$	-	335	-	
Source-Drain Diode						
Maximum Diode Forward Current	I_S		-	-	-2.1	A
Diode Forward Voltage	V_{SD}	$I_S = -2.1\text{A}, V_{GS} = 0\text{V}$	-	-0.75	-1.2	V

Note:

(1) Pulse test; pulse width $\leq 300\ \mu\text{s}$,
duty cycle $\leq 2\%$



P-Channel Enhancement-Mode MOSFET

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

Fig. 1 – Output Characteristics

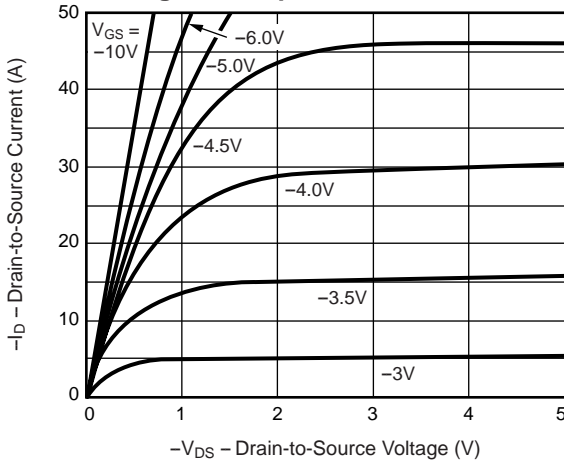


Fig. 2 – Transfer Characteristics

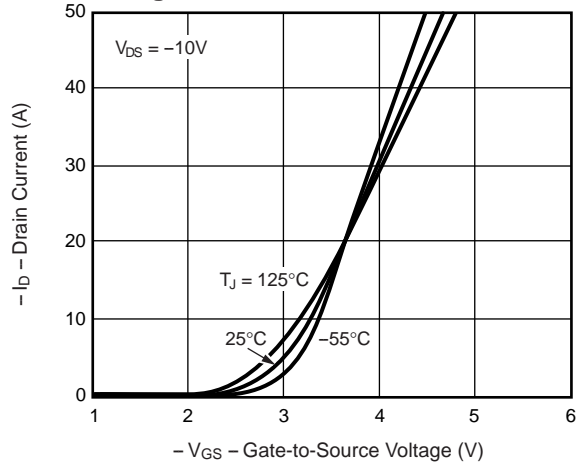


Fig. 3 – Threshold Voltage vs. Temperature

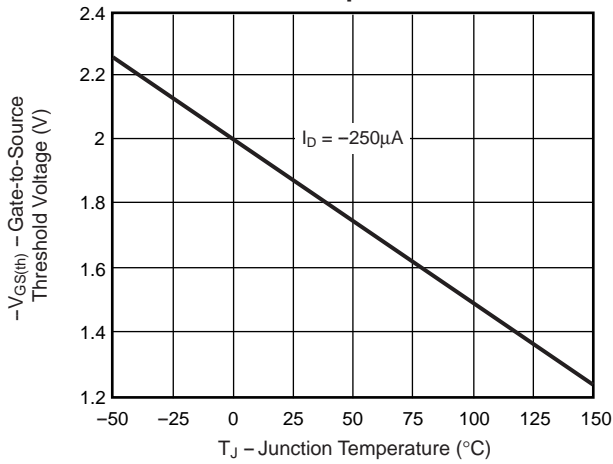


Fig. 4 – On-Resistance vs. Drain Current

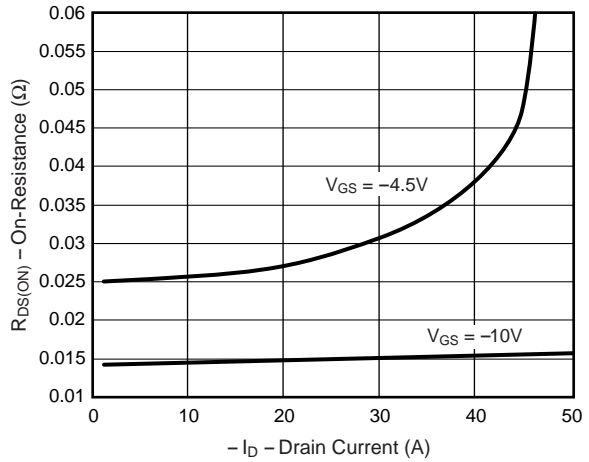
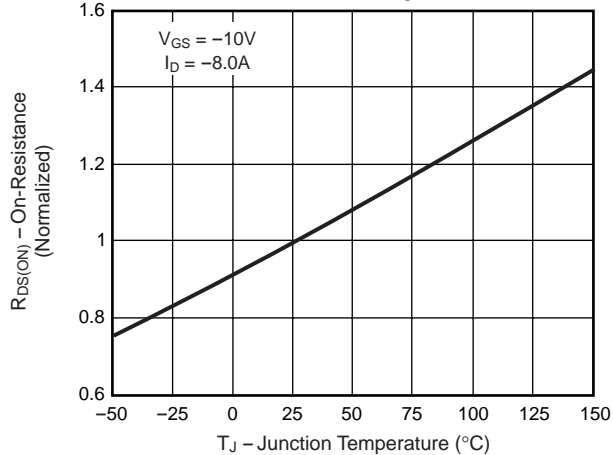


Fig. 5 – On-Resistance vs. Junction Temperature



P-Channel Enhancement-Mode MOSFET

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

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

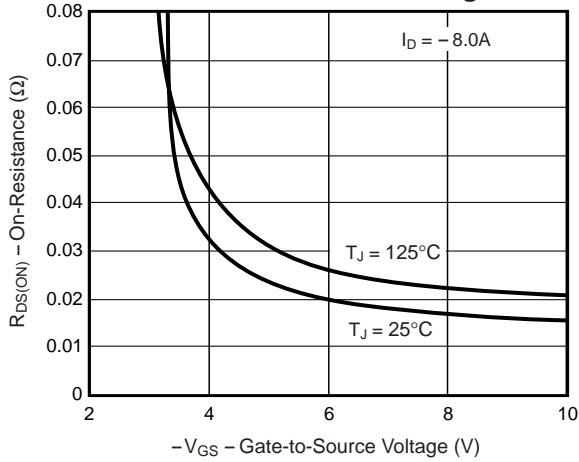


Fig. 7 – Gate Charge

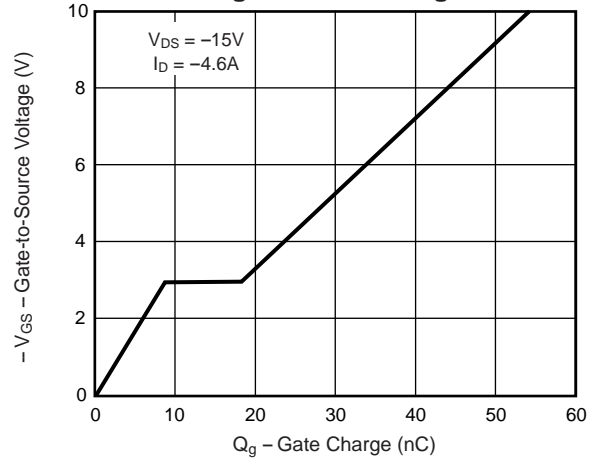


Fig. 8 – Capacitance

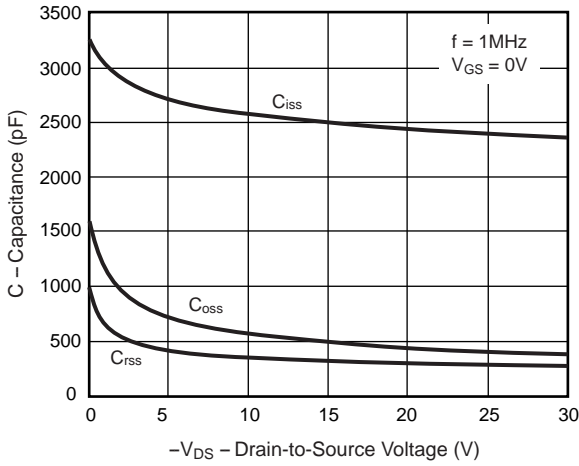
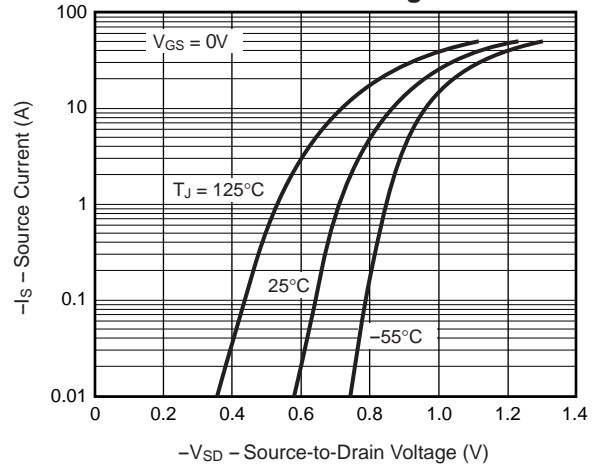


Fig. 9 – Source-Drain Diode Forward Voltage



P-Channel Enhancement-Mode MOSFET

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

Fig. 10 – Breakdown Voltage vs. Junction Temperature

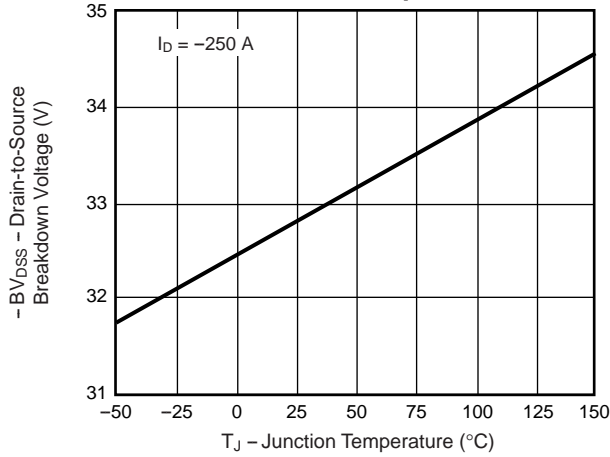


Fig. 11 – Transient Thermal Impedance

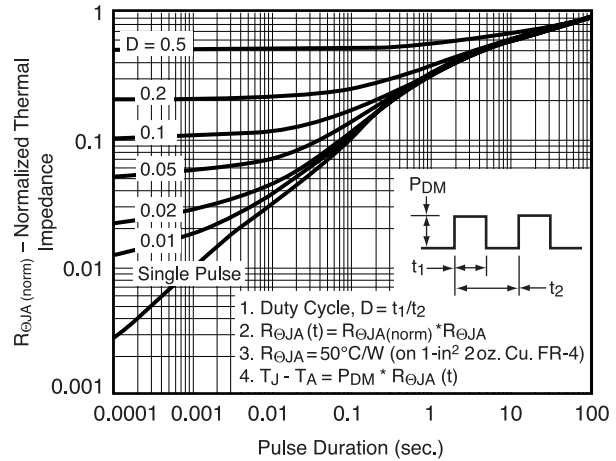


Fig. 12 – Power vs. Pulse Duration

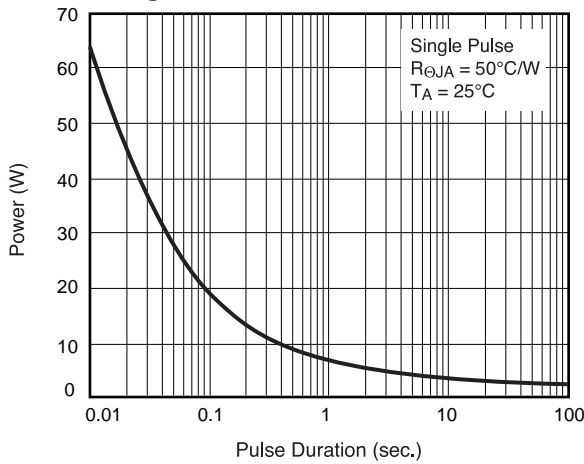


Fig. 13 – Maximum Safe Operating Area

