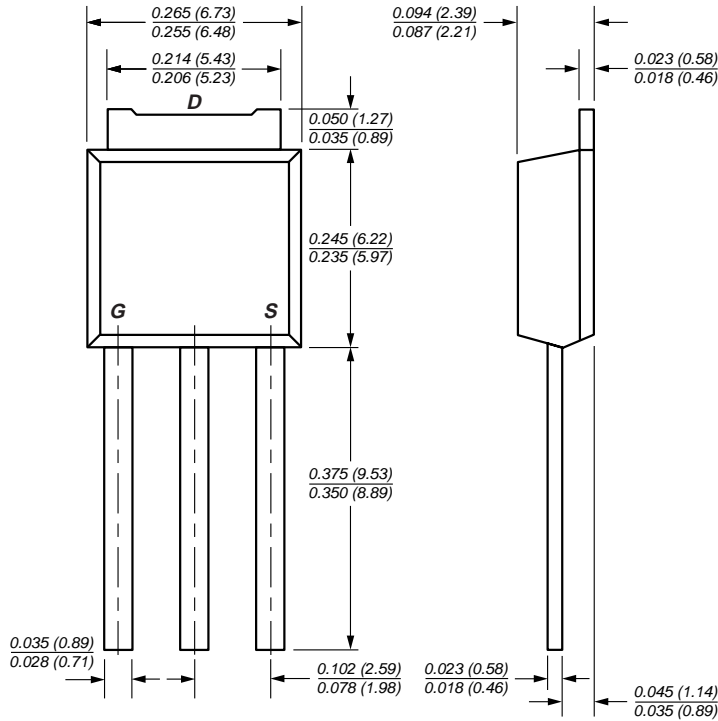
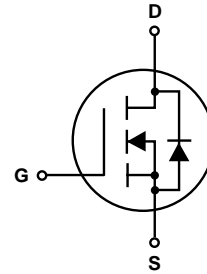


N-Channel Enhancement-Mode MOSFET

V_{DS} 30V
R_{DS(ON)} 9mΩ
I_D 65A

TO-251 (IPAK)

TRENCH
GENFET™



Dimensions in inches and (millimeters)

Features

- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Specially Designed for Low Voltage DC/DC Converters and motor drives
- Fast Switching for High Efficiency

Mechanical Data

Case: JEDEC TO-251 molded plastic body

Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

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

Weight: 0.011oz., 0.4g

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

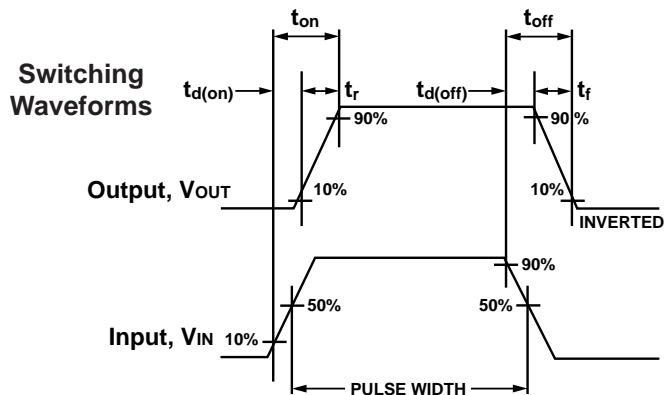
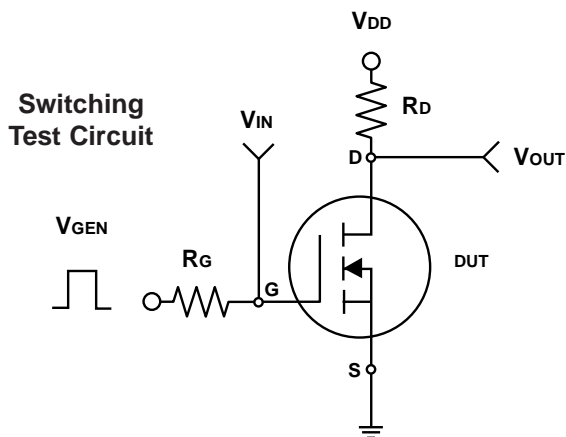
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current ⁽¹⁾	I _D	65	A
Pulsed Drain Current	I _{DM}	150	
Maximum Power Dissipation	P _D	T _C = 25°C 62.5	W
		T _C = 100°C 25.0	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150	°C
Junction-to-Case Thermal Resistance	R _{θJC}	2.0	°C/W
Junction-to-Ambient Thermal Resistance	R _{θJA}	110	°C/W

Notes: (1) Maximum DC current limited by the package.

Electrical Characteristics (T_J = 25°C unless otherwise noted)

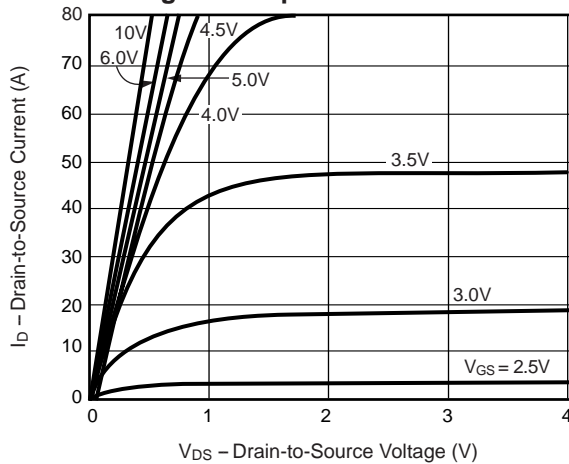
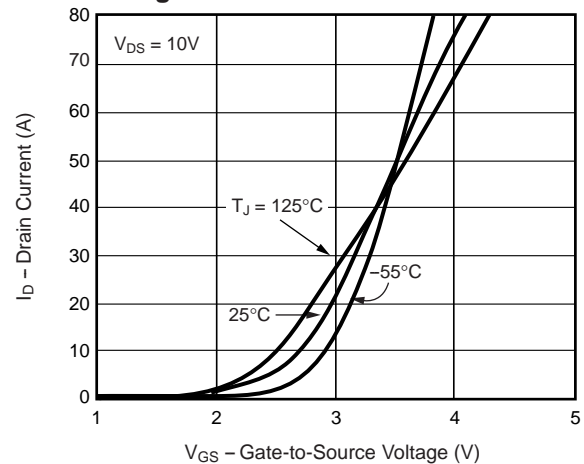
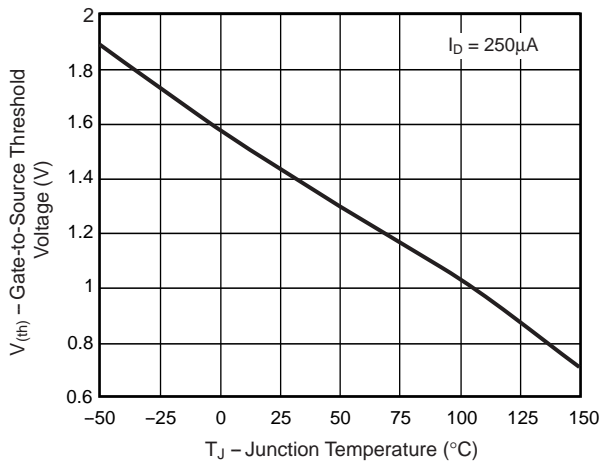
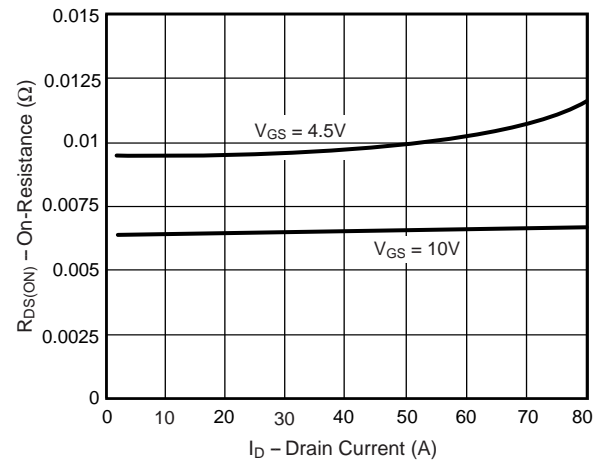
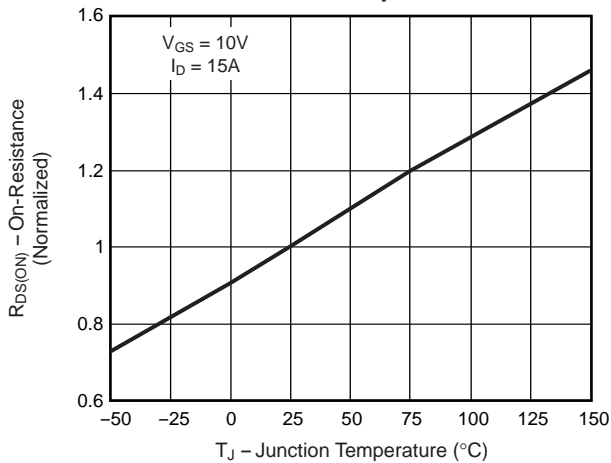
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250μA	30	—	—	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.0	—	3.0	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	—	—	±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0V	—	—	1.0	μA
On-State Drain Current ⁽¹⁾	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} = 10V	50	—	—	A
Drain-Source On-State Resistance ⁽¹⁾	R _{DSON}	V _{GS} = 10V, I _D = 15A	—	7.1	9	mΩ
		V _{GS} = 4.5V, I _D = 13A	—	10	12	
Forward Transconductance ⁽¹⁾	g _{fs}	V _{DS} = 15V, I _D = 15A	—	50	—	S
Dynamic						
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =5V, I _D =15A	—	31	43	nC
		V _{DS} = 15V, V _{GS} = 10V I _D = 15A	—	60	84	
			—	9	—	
Gate-Source Charge	Q _{gs}	V _{DS} = 15V, V _{GS} = 10V I _D = 15A	—	8.5	—	ns
Gate-Drain Charge	Q _{gd}		—	13	26	
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15V, R _L = 15Ω I _D ≅ 1A, V _{GEN} = 10V R _G = 6Ω	—	16	29	ns
Rise Time	t _r		—	94	132	
Turn-Off Delay Time	t _{d(off)}		—	38	57	
Fall Time	t _f		—	—	—	
Input Capacitance	C _{iss}	V _{GS} = 0V	—	3240	—	pF
Output Capacitance	C _{oss}	V _{DS} = 15V	—	625	—	
Reverse Transfer Capacitance	C _{rss}	f = 1.0MHz	—	285	—	
Source-Drain Diode						
Max Diode Forward Current	I _S	—	—	—	20	A
Diode Forward Voltage ⁽¹⁾	V _{SD}	I _S = 20A, V _{GS} = 0V	—	0.85	1.3	V

Note: (1) Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%



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

Fig. 4 – On-Resistance vs. Drain Current

Fig. 5 – On-Resistance vs. Junction Temperature


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

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

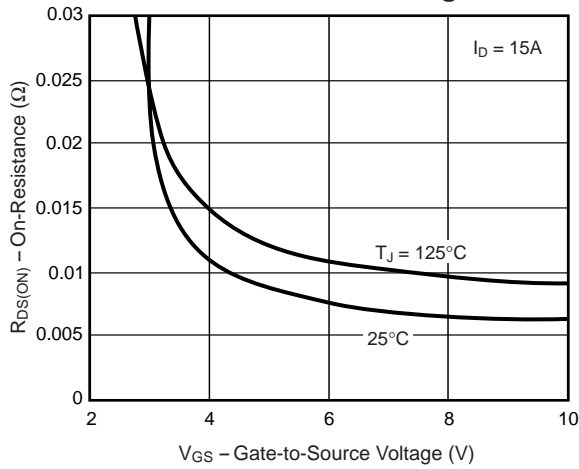


Fig. 7 – Gate Charge

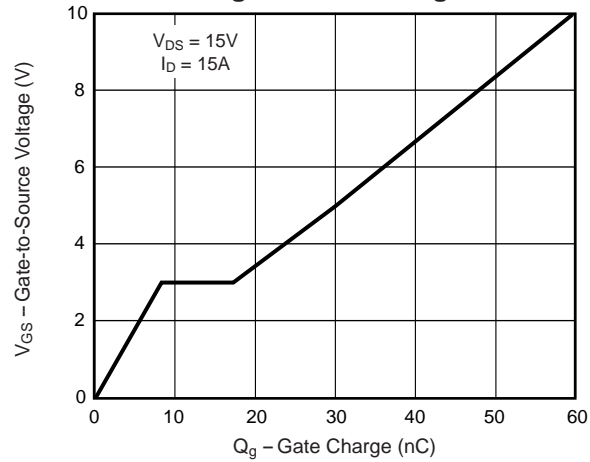


Fig. 8 – Capacitance

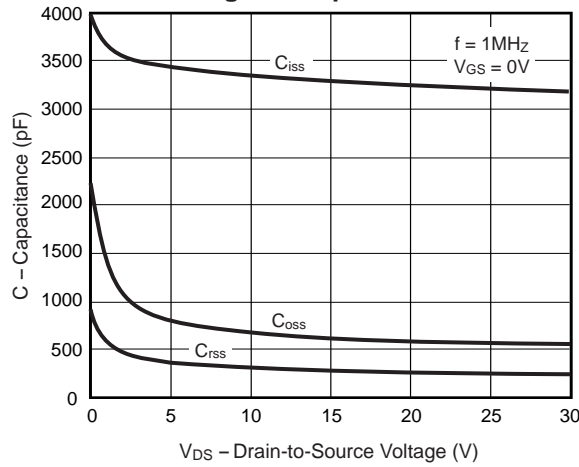
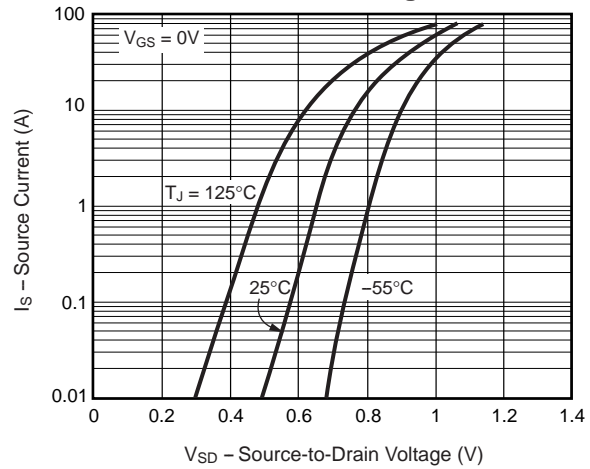
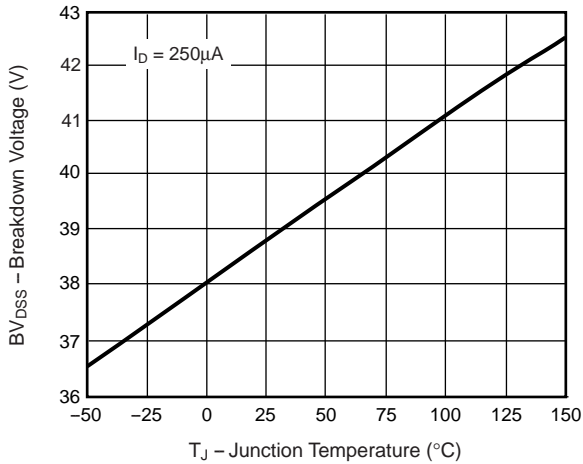
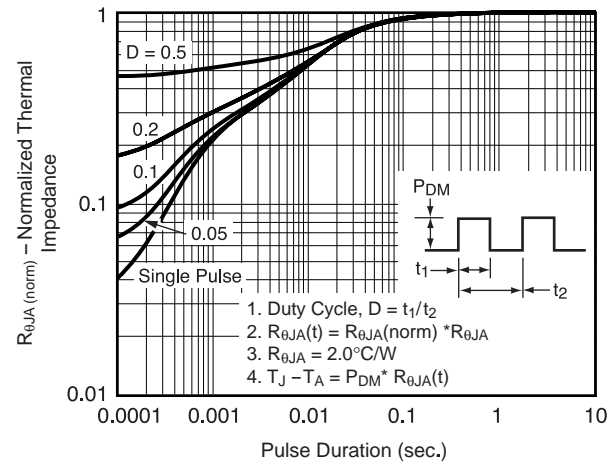
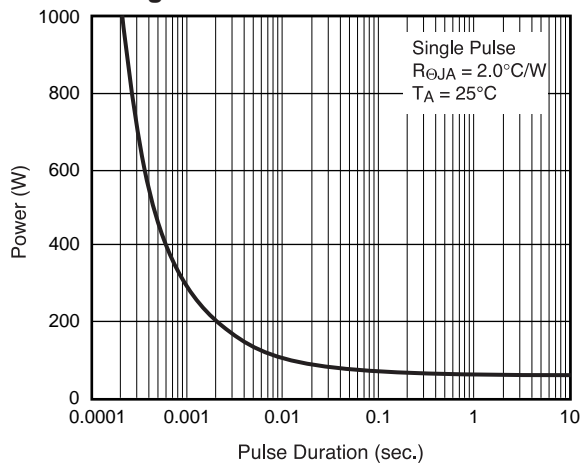


Fig. 9 – Source-Drain Diode Forward Voltage



Ratings and Characteristic Curves

($T_A = 25^\circ\text{C}$ 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
