

N-Channel 200-V (D-S) MOSFET

Key Features:

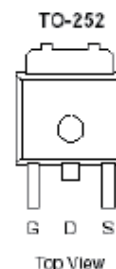
- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

Typical Applications:

- PoE Power Sourcing Equipment
- PoE Powered Devices
- Telecom DC/DC converters
- White LED boost converters



RoHS
COMPLIANT
HALOGEN
FREE



PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
200	400 @ $V_{GS} = 10V$	9.2
	450 @ $V_{GS} = 5.5V$	8.7

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_C = 25^\circ C$	I_D	9.2	A
Pulsed Drain Current ^b		I_{DM}	50	
Continuous Source Current (Diode Conduction)		I_S	45	A
Power Dissipation	$T_C = 25^\circ C$	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ C$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a		$R_{\theta JA}$	50	$^\circ C/W$
Maximum Junction-to-Case		$R_{\theta JC}$	3	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

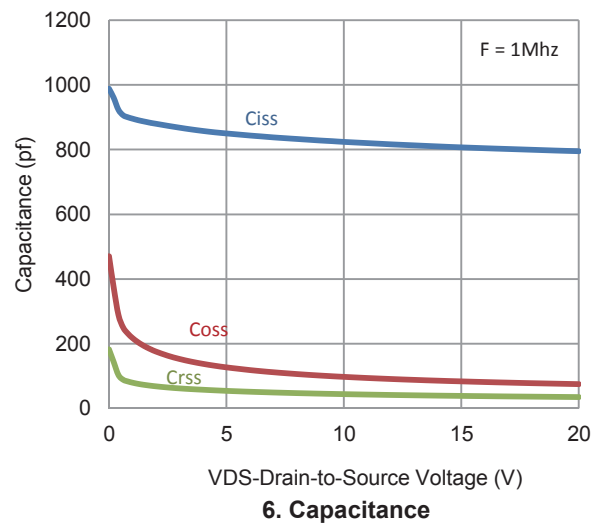
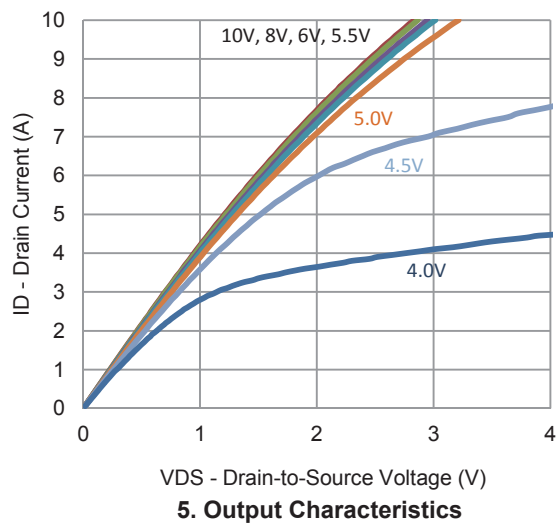
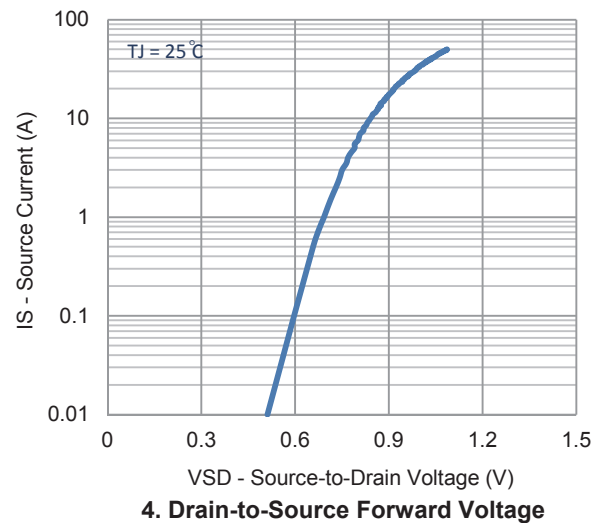
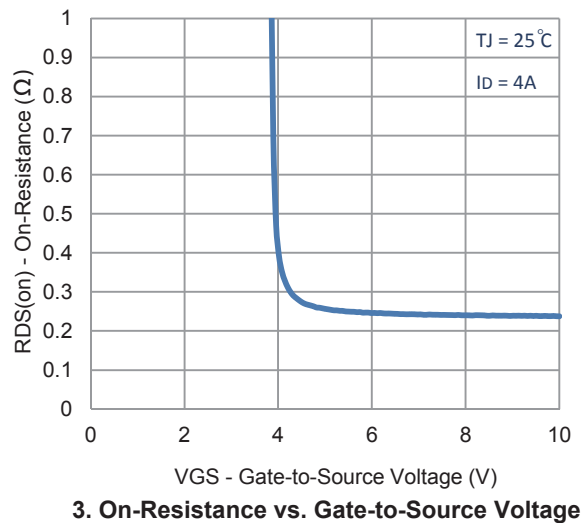
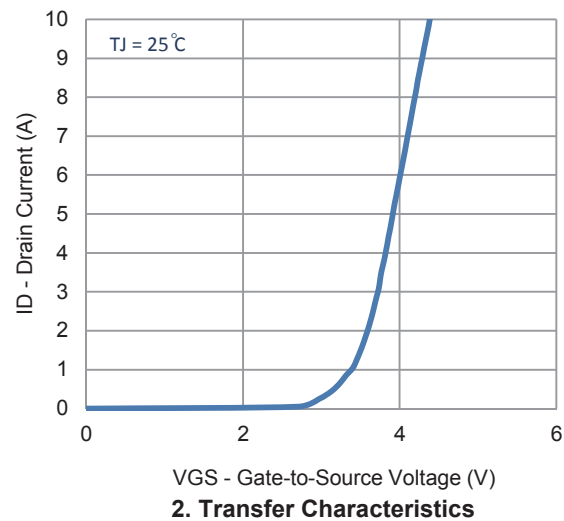
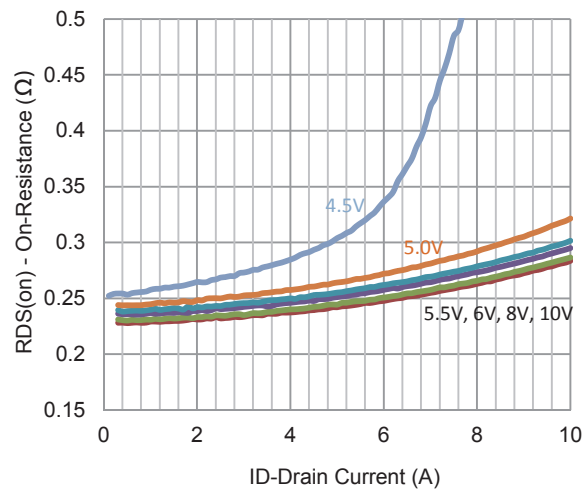
Typical Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu A$	1		3.5	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V$, $V_{GS} = 20 V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 160 V$, $V_{GS} = 0 V$			1	μA
		$V_{DS} = 160 V$, $V_{GS} = 0 V$, $T_J = 55^\circ C$			25	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = 5 V$, $V_{GS} = 10 V$	34			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = 10 V$, $I_D = 4 A$			400	$m\Omega$
		$V_{GS} = 5.5 V$, $I_D = 3.5 A$			450	
Forward Transconductance	g_{fs}	$V_{DS} = 15 V$, $I_D = 4 A$		10		S
Diode Forward Voltage	V_{SD}	$I_S = 23 A$, $V_{GS} = 0 V$		0.95		V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 100 V$, $V_{GS} = 5.5 V$, $I_D = 4 A$		9.1		nC
Gate-Source Charge	Q_{gs}			3.8		
Gate-Drain Charge	Q_{gd}			3.8		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 100 V$, $R_L = 5 \Omega$, $I_D = 4 A$, $V_{GEN} = 10 V$, $R_{GEN} = 6 \Omega$		3.7		nS
Rise Time	t_r			7.7		
Turn-Off Delay Time	$t_{d(off)}$			26.3		
Fall Time	t_f			12.4		
Input Capacitance	C_{iss}	$V_{DS} = 15 V$, $V_{GS} = 0 V$, $f = 1 MHz$		807		pF
Output Capacitance	C_{oss}			81		
Reverse Transfer Capacitance	C_{rss}			38		

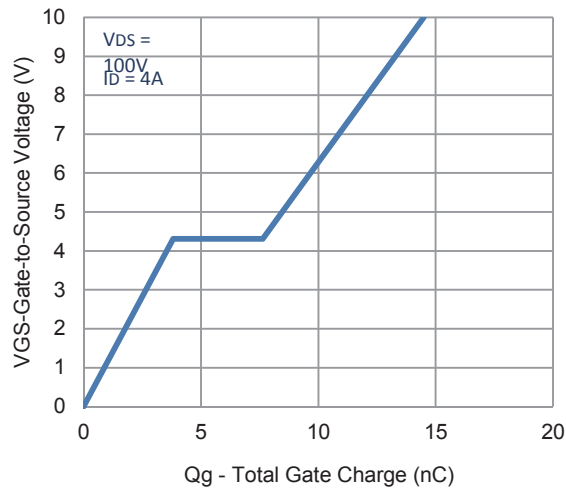
Notes

- Pulse test: PW $\leq 300 \mu s$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

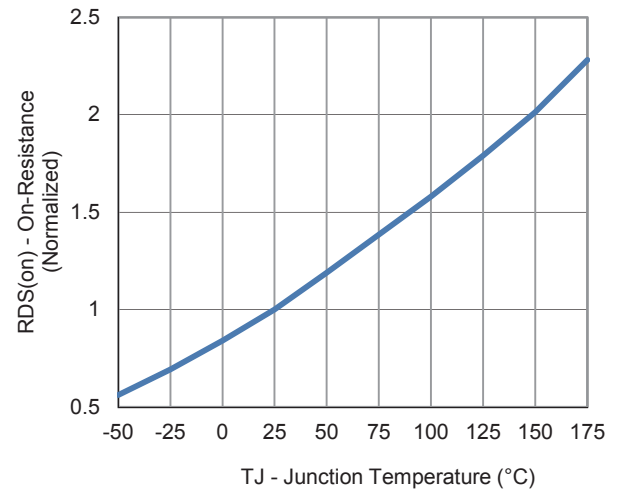
Typical Electrical Characteristics



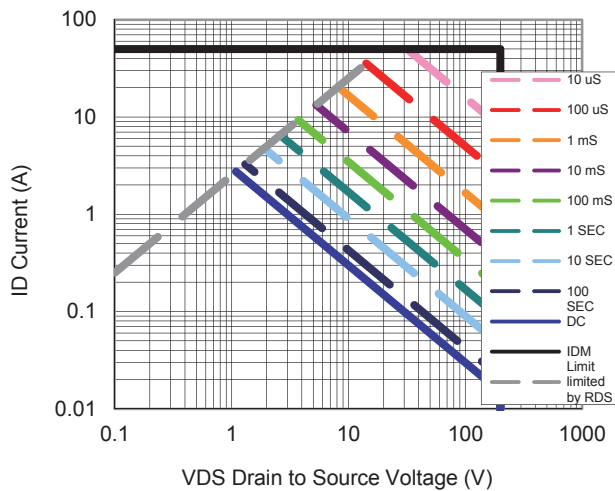
Typical Electrical Characteristics



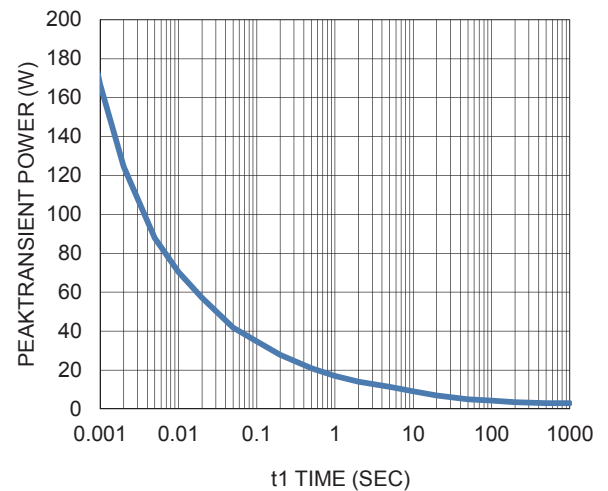
7. Gate Charge



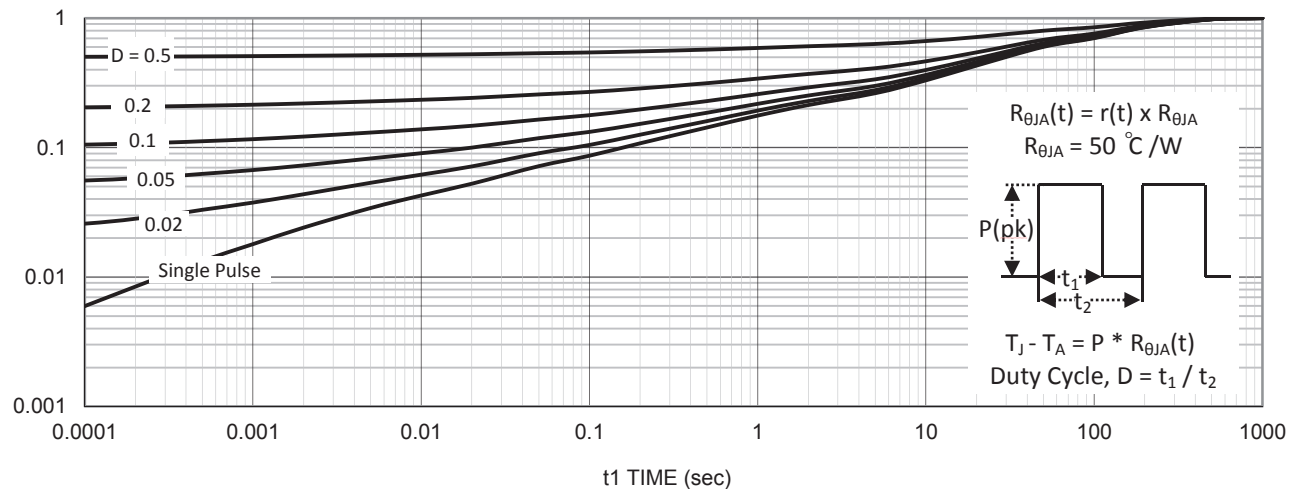
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient