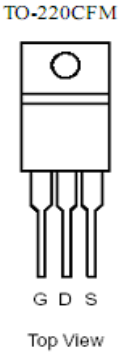
N-Channel 100-V (D-S) MOSFET

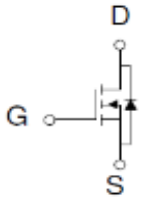
Key Features:
- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

Typical Applications:
- LED Inverter Circuits
- DC/DC Conversion Circuits
- Motor drives

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (mΩ)	I_D (A)
100	6 @ V_{GS} = 10V	82
	7.5 @ V_{GS} = 6.5V	73

Pb-free
RoHS COMPLIANT
HALOGEN FREE





N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)				
Parameter		**Symbol**	**Limit**	**Units**
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current [a]	T_C=25°C	I_D	82	A
Pulsed Drain Current [b]		I_{DM}	320	
Continuous Source Current (Diode Conduction) [a]	T_C=25°C	I_S	82	A
Power Dissipation [a]	T_C=25°C	P_D	60	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	°C

THERMAL RESISTANCE RATINGS			
Parameter	**Symbol**	**Maximum**	**Units**
Maximum Junction-to-Ambient [c]	$R_{\theta JA}$	62.5	°C/W
Maximum Junction-to-Case	$R_{\theta JC}$	2.5	

Notes
a. Package Limited
b. Pulse width limited by maximum junction temperature
c. Surface Mounted on 1” x 1” FR4 Board.

Electrical Characteristics

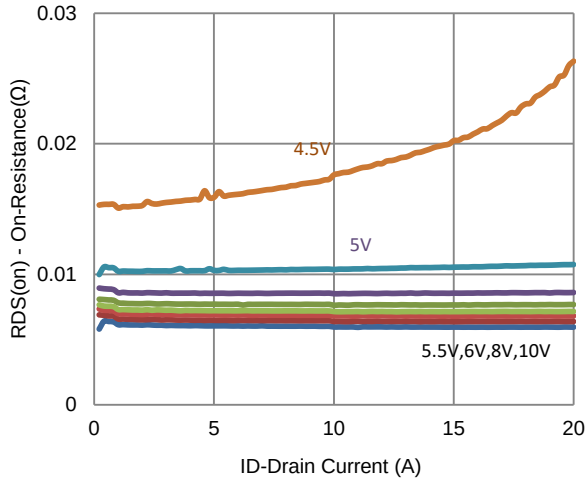
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA	1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80 V, V_{GS} = 0 V			1	uA
		V_{DS} = 80 V, V_{GS} = 0 V, T_J = 55°C			10	
On-State Drain Current [a]	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 10 V	110			A
Drain-Source On-Resistance [a]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 40 A			6	mΩ
		V_{GS} = 6.5 V, I_D = 30 A			7.5	
Forward Transconductance [a]	g_{fs}	V_{DS} = 15 V, I_D = 40 A		70		S
Diode Forward Voltage [a]	V_{SD}	I_S = 40 A, V_{GS} = 0 V		0.85		V
Dynamic [b]						
Total Gate Charge	Q_g	V_{DS} = 50 V, V_{GS} = 6 V, I_D = 20 A		24		nC
Gate-Source Charge	Q_{gs}			10		
Gate-Drain Charge	Q_{gd}			10		
Turn-On Delay Time	$t_{d(on)}$	V_{DS} = 50 V, R_L = 2.5 Ω, I_D = 20 A, V_{GEN} = 10 V, R_{GEN} = 6 Ω		15		ns
Rise Time	t_r			12		
Turn-Off Delay Time	$t_{d(off)}$			43		
Fall Time	t_f			63		
Input Capacitance	C_{iss}	V_{DS} = 50 V, V_{GS} = 0 V, f = 1 Mhz		2305		pF
Output Capacitance	C_{oss}			560		
Reverse Transfer Capacitance	C_{rss}			17		

Notes

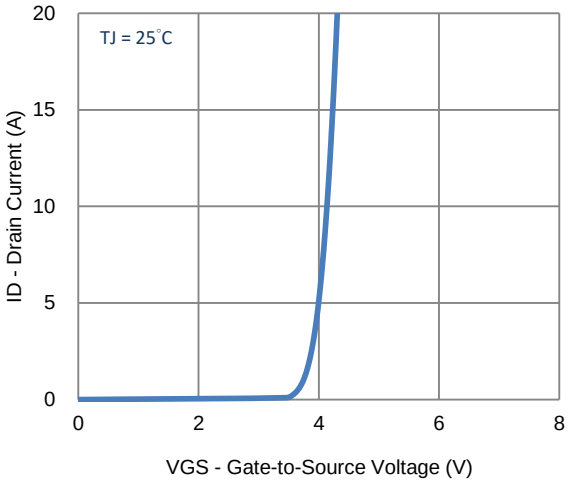
a. Pulse test: PW <= 300us duty cycle <= 2%.

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

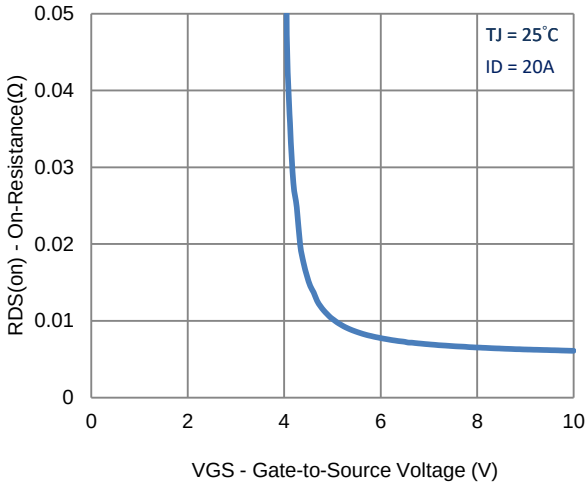
Typical Electrical Characteristics



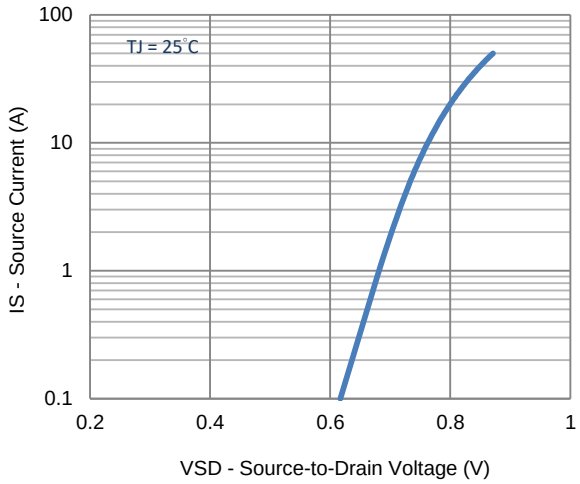
1. On-Resistance vs. Drain Current



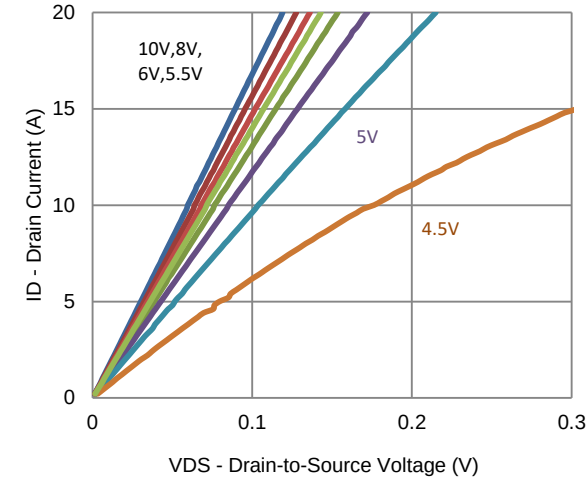
2. Transfer Characteristics



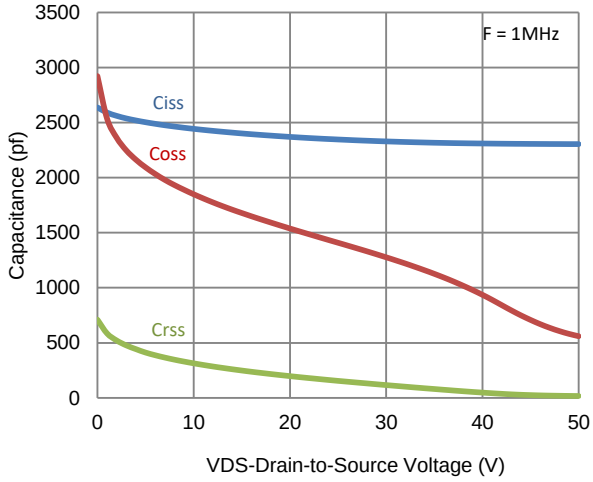
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

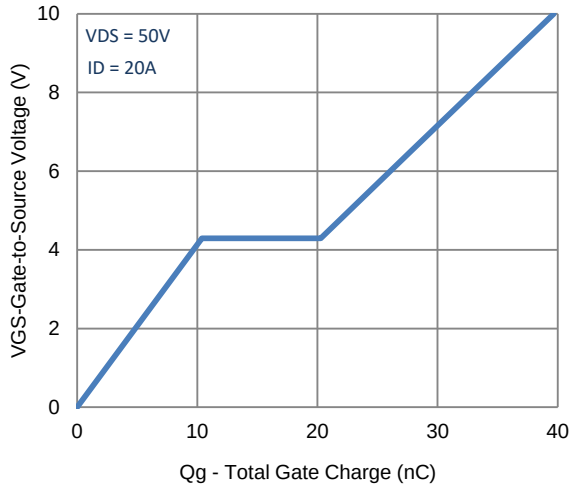


5. Output Characteristics

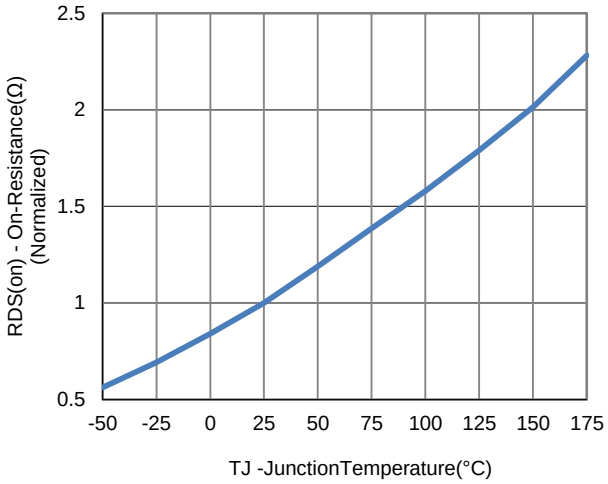


6. Capacitance

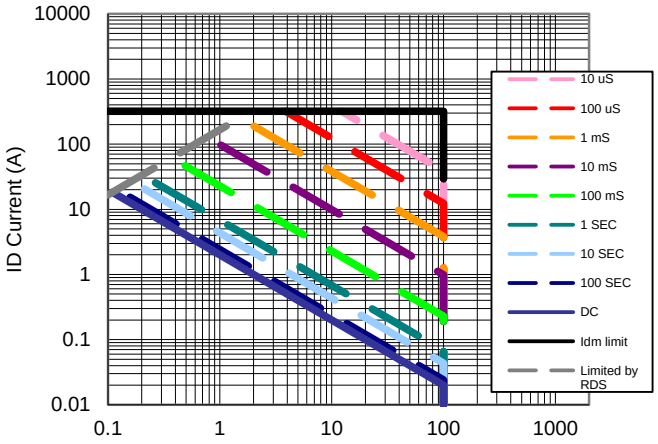
Typical Electrical Characteristics



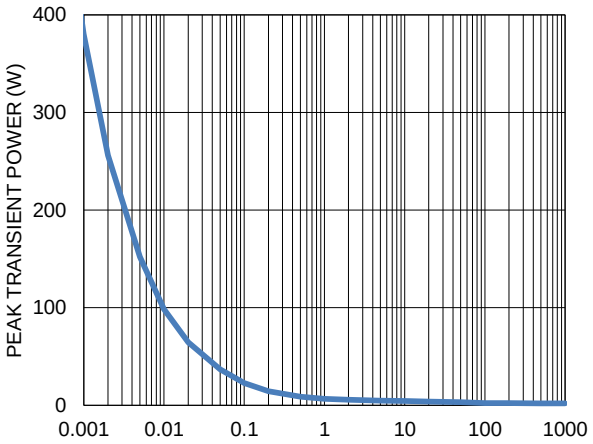
7. Gate Charge



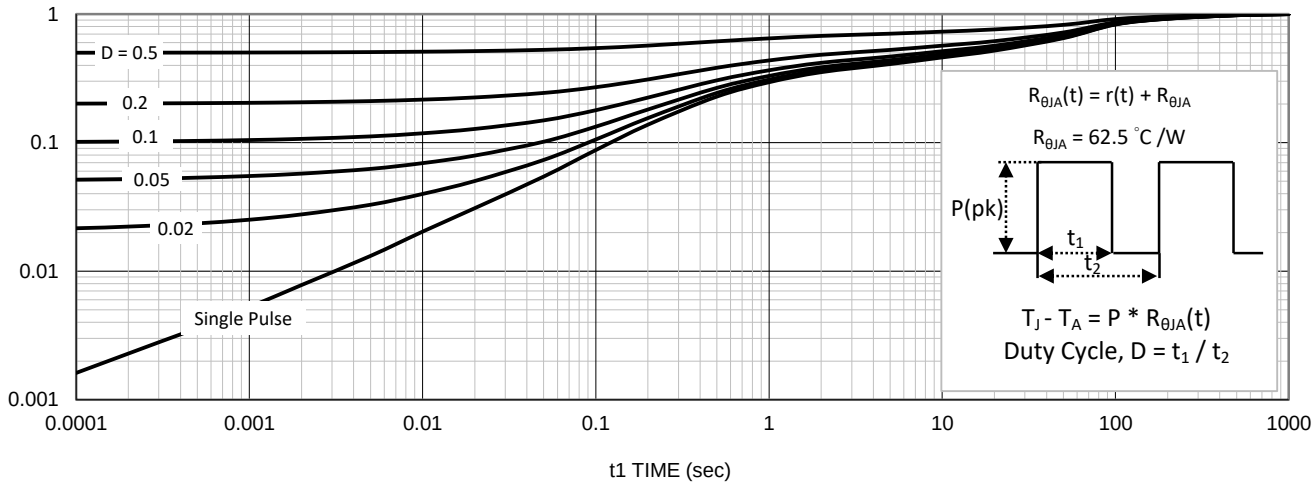
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

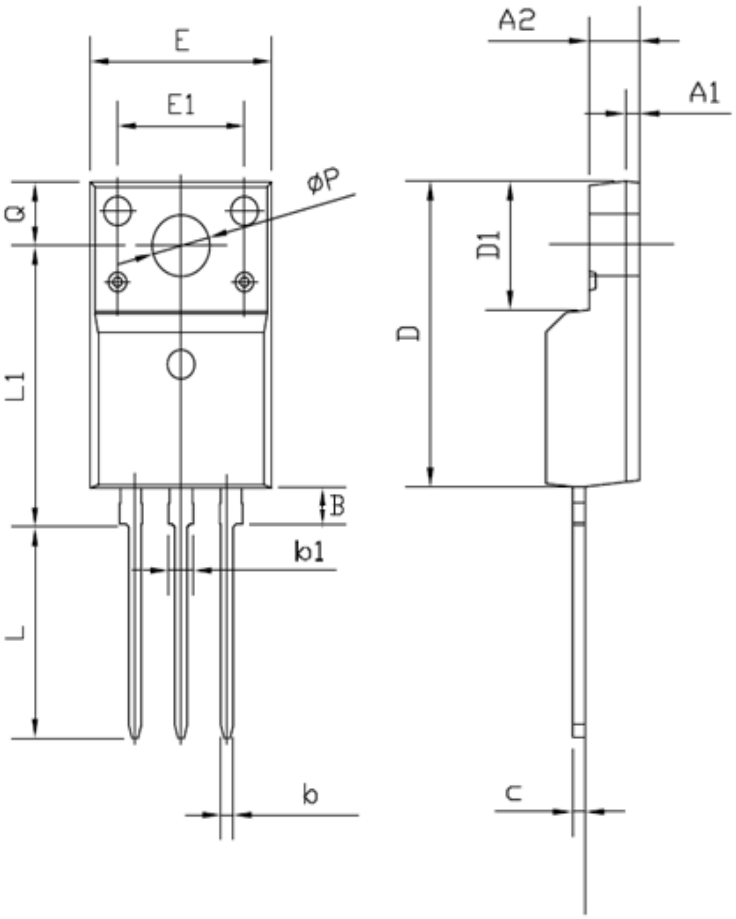


10. Single Pulse Maximum Power Dissipation

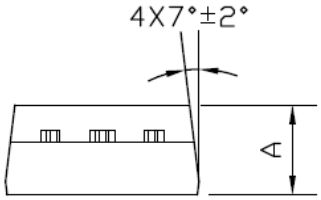


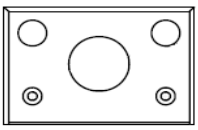
11. Normalized Thermal Transient Junction to Ambient

Package Information

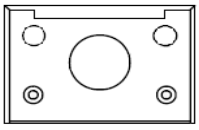


DIM.	MILLIMETERS	
	MIN	MAX
A	4.3	4.9
A1	0.7	1.15
A2	2.34	2.9
B	3.13	4.5
b	0.5	0.91
b1	0.95	1.47
c	0.45	0.8
D	14.7	16.07
D1	6.2	6.9
E	9.7	10.3
E1	6.8	7.2
e	2.54 BSC	
L	9.2	11.16
L1	14.39	16.8
ØP	3.08	3.28
Q	2.34	3.4





Option 1



Option 2