

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

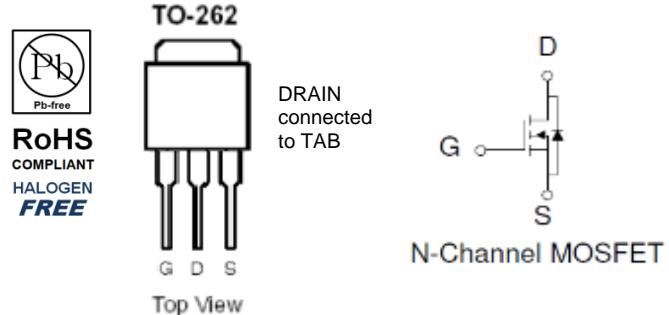
### Key Features:

- 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	4.4 @ $V_{GS} = 10V$	100 <sup>a</sup>
	5.2 @ $V_{GS} = 6.5V$	



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limit	Units
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current <sup>a</sup>	$I_D$	100	A
Pulsed Drain Current <sup>b</sup>	$I_{DM}$	400	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	100	A
Power Dissipation <sup>a</sup>	$P_D$	300	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 <sup>c</sup>	$R_{\theta JA}$	62.5	°C/W
Maximum Junction-to-Case	$R_{\theta JC}$	0.5	

### Notes

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

## Electrical Characteristics

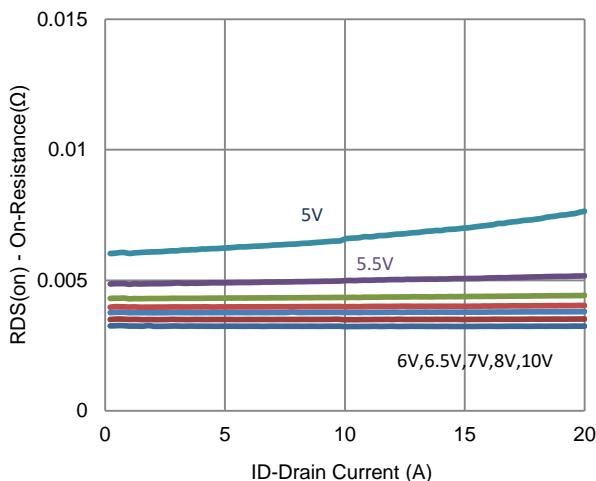
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250 \mu A$	1			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 V$ , $V_{GS} = \pm 20 V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 80 V$ , $V_{GS} = 0 V$			1	uA
		$V_{DS} = 80 V$ , $V_{GS} = 0 V$ , $T_J = 55^\circ C$			10	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = 5 V$ , $V_{GS} = 10 V$	120			A
Drain-Source On-Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 10 V$ , $I_D = 50 A$			4.4	mΩ
		$V_{GS} = 6.5 V$ , $I_D = 40 A$			5.2	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 15 V$ , $I_D = 50 A$		57		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 50 A$ , $V_{GS} = 0 V$		0.92		V
<b>Dynamic <sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 50 V$ , $V_{GS} = 6.5 V$ , $I_D = 20 A$		50		nC
Gate-Source Charge	$Q_{gs}$			21		
Gate-Drain Charge	$Q_{gd}$			16		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 50 V$ , $R_L = 2.5 \Omega$ , $I_D = 20 A$ , $V_{GEN} = 10 V$ , $R_{GEN} = 6 \Omega$		54		ns
Rise Time	$t_r$			58		
Turn-Off Delay Time	$t_{d(off)}$			89		
Fall Time	$t_f$			103		
Input Capacitance	$C_{iss}$	$V_{DS} = 50 V$ , $V_{GS} = 0 V$ , $f = 1 \text{ MHz}$		4428		pF
Output Capacitance	$C_{oss}$			1070		
Reverse Transfer Capacitance	$C_{rss}$			793		

## Notes

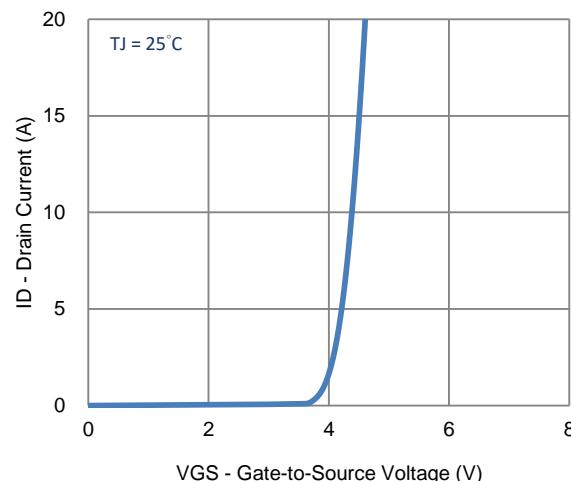
- Pulse test: PW <= 300us duty cycle <= 2%.
- Guaranteed by design, not subject to production testing.

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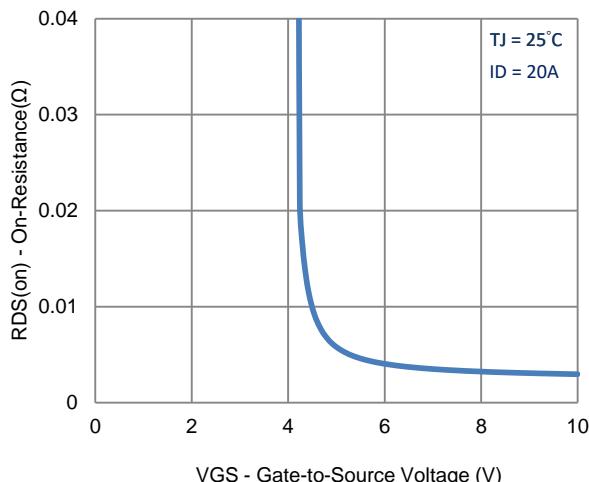
### Typical Electrical Characteristics



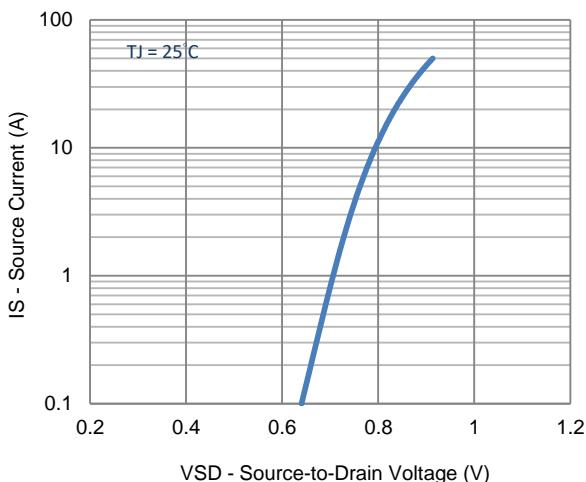
1. On-Resistance vs. Drain Current



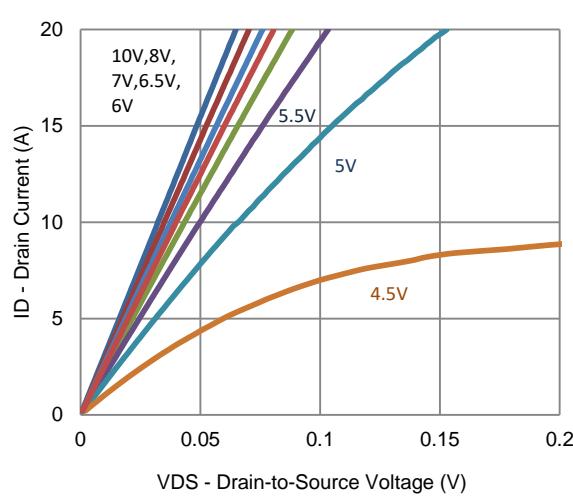
2. Transfer Characteristics



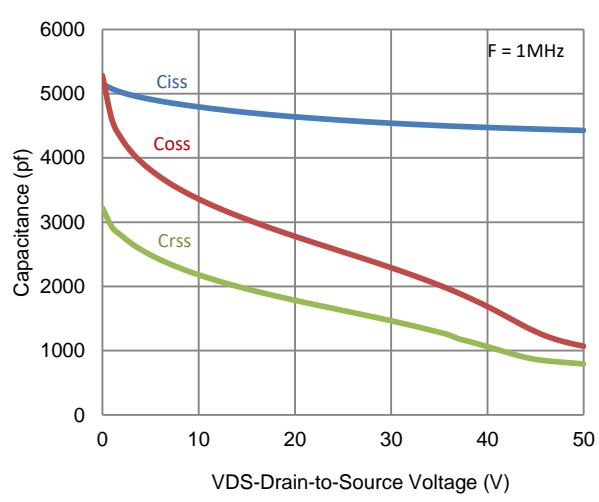
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

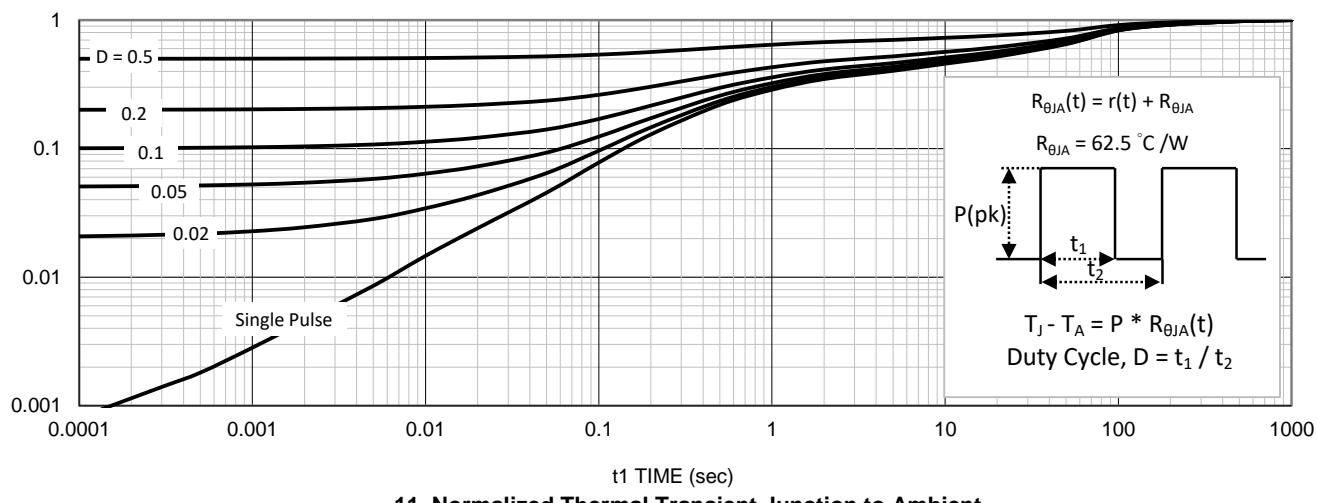
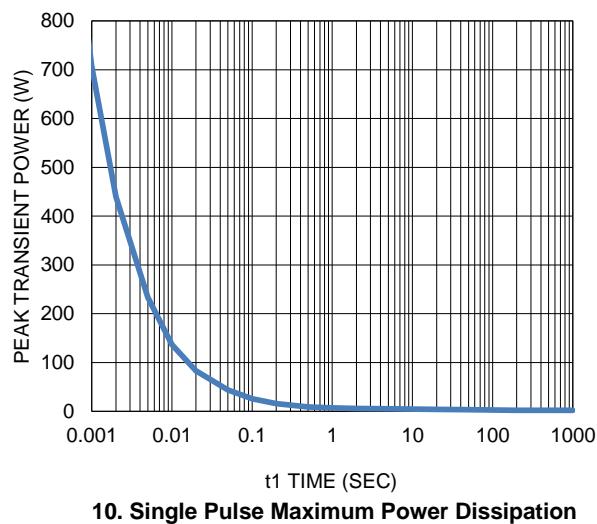
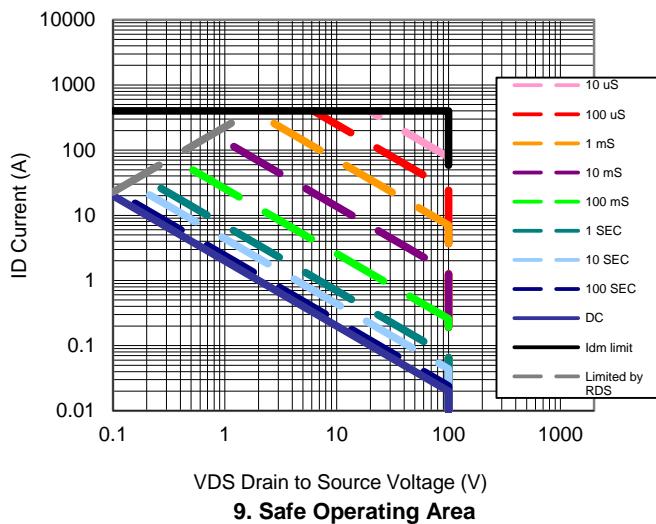
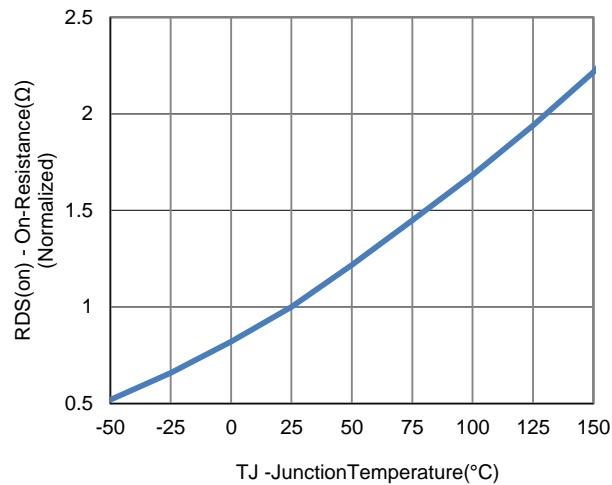
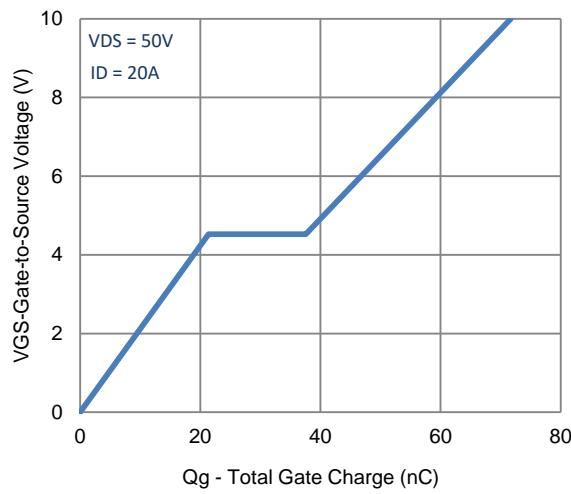


5. Output Characteristics

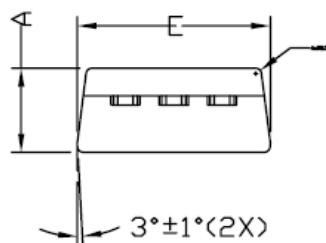
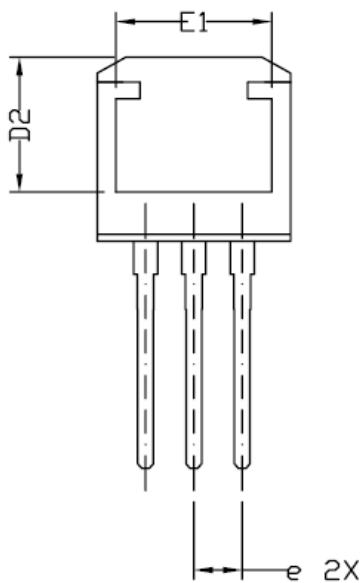
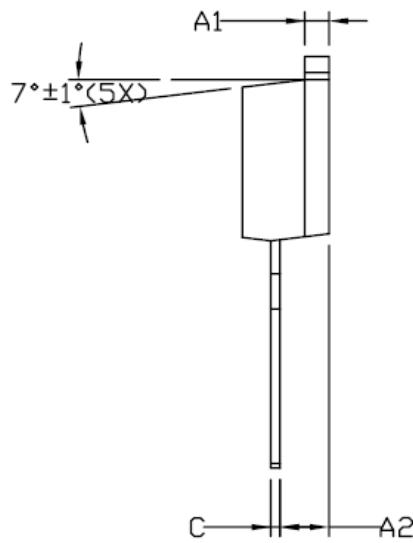
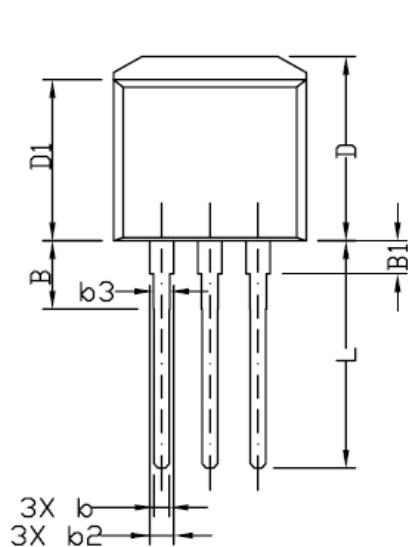


6. Capacitance

## Typical Electrical Characteristics



## Package Information



DIM.	MILLIMETERS	
	MIN	MAX
A	4.24	4.72
A1	1.15	1.4
A2	2.3	2.7
B	3.55	4
B1	1.65	2
b	0.69	0.94
b2	1.17	1.75
b3	0.74	1.7
c	0.4	0.6
D	9.8	10.38
D1	8.64	9.65
D2	6.86	8.44
e	2.54 BSC	
E	9.7	10.54
E1	6.86	8.89
L	12.27	13.97

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