

## 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)	$r_{DS(on)}$ (m $\Omega$ )	$I_D$ (A)
100	210 @ $V_{GS} = 10V$	2.6



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ 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>	$I_D$	2.6	A
Pulsed Drain Current <sup>b</sup>	$I_{DM}$	10	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	2.6	A
Power Dissipation <sup>a</sup>	$P_D$	2.1	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 175	$^\circ\text{C}$

### THERMAL RESISTANCE RATINGS

Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient <sup>a</sup>	$R_{\theta JA}$	40	$^\circ\text{C/W}$
Maximum Junction-to-Case	$R_{\theta JC}$	3	

### Notes

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

## Electrical Characteristics

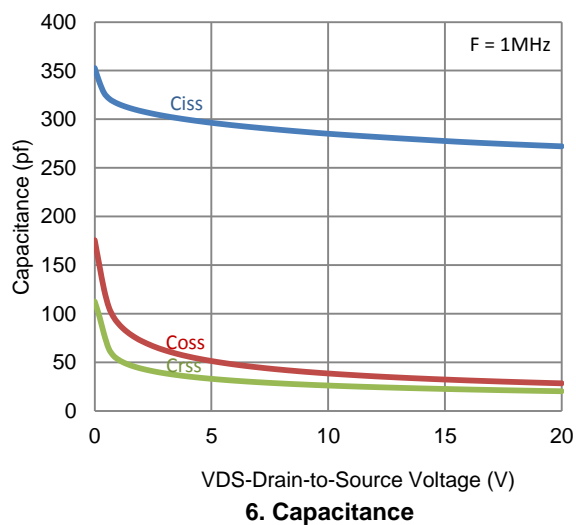
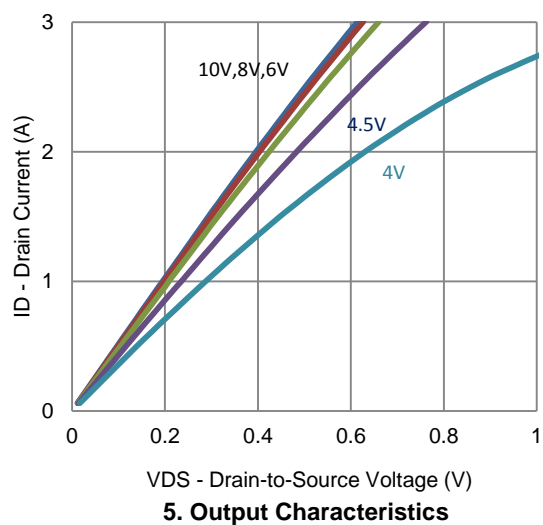
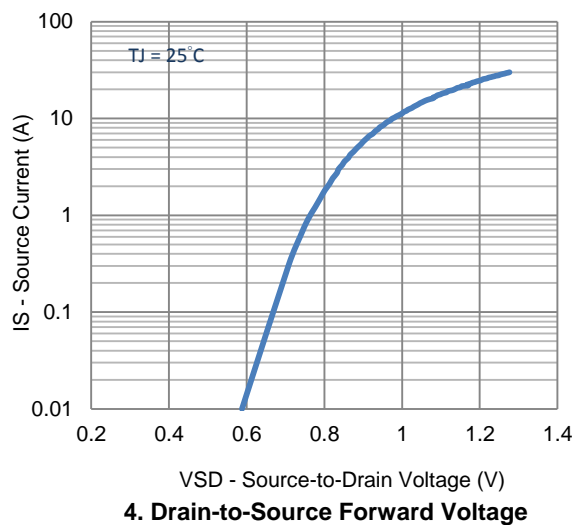
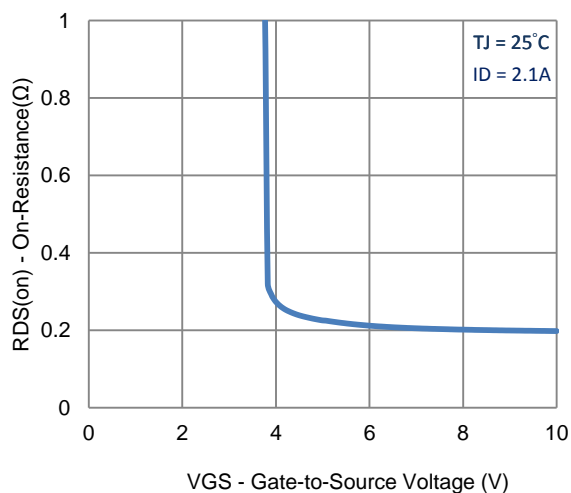
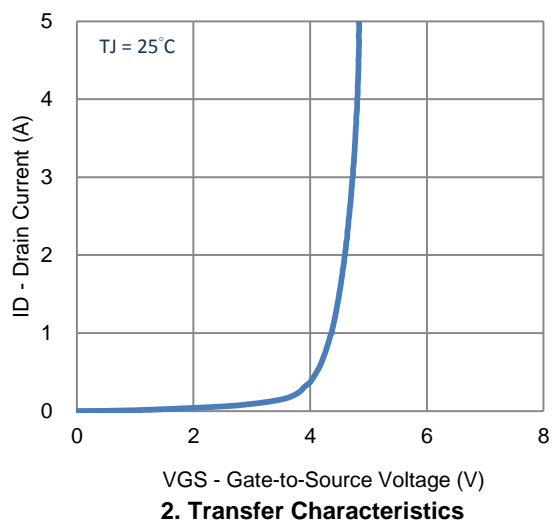
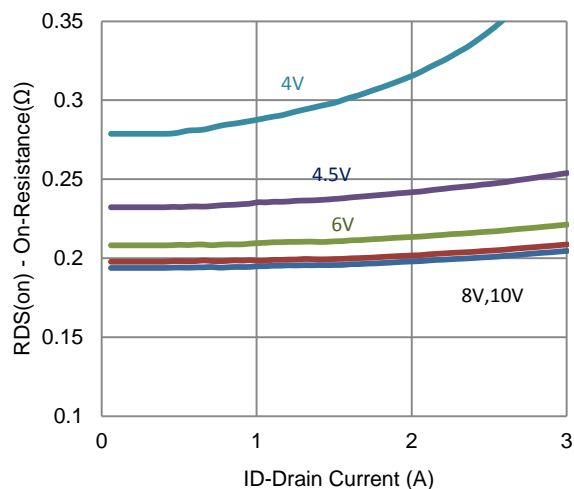
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 80 V, V_{GS} = 0 V$			1	$\mu A$
		$V_{DS} = 80 V, V_{GS} = 0 V, T_J = 55^\circ C$			10	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = 5 V, V_{GS} = 10 V$	3.9			A
Drain-Source On-Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 10 V, I_D = 2.1 A$			210	m $\Omega$
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 15 V, I_D = 2.1 A$		5		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 1.3 A, V_{GS} = 0 V$		0.79		V
<b>Dynamic <sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 50 V, V_{GS} = 10 V,$ $I_D = 2.1 A$		8.5		nC
Gate-Source Charge	$Q_{gs}$			1.8		
Gate-Drain Charge	$Q_{gd}$			2.9		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 50 V, R_L = 23.9 \Omega,$ $I_D = 2.1 A,$ $V_{GEN} = 10 V, R_{GEN} = 6 \Omega$		5		ns
Rise Time	$t_r$			4		
Turn-Off Delay Time	$t_{d(off)}$			12		
Fall Time	$t_f$			3		
Input Capacitance	$C_{iss}$	$V_{DS} = 15 V, V_{GS} = 0 V, f = 1 Mhz$		278		pF
Output Capacitance	$C_{oss}$			32		
Reverse Transfer Capacitance	$C_{rss}$			23		

## Notes

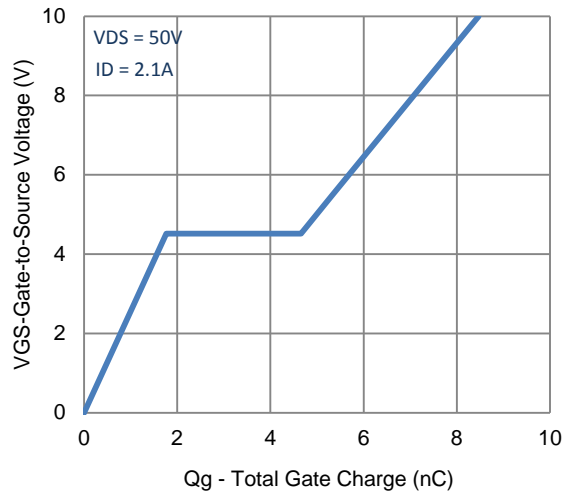
- a. Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

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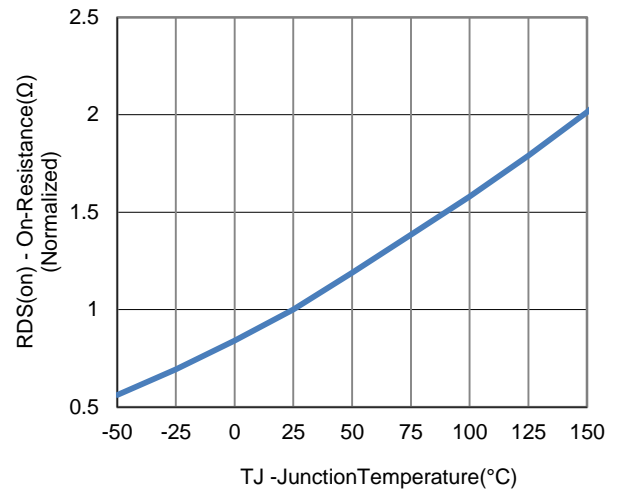
## Typical Electrical Characteristics



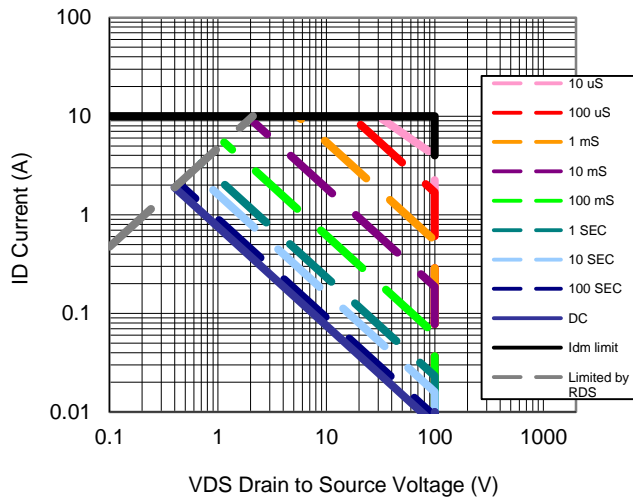
## Typical Electrical Characteristics



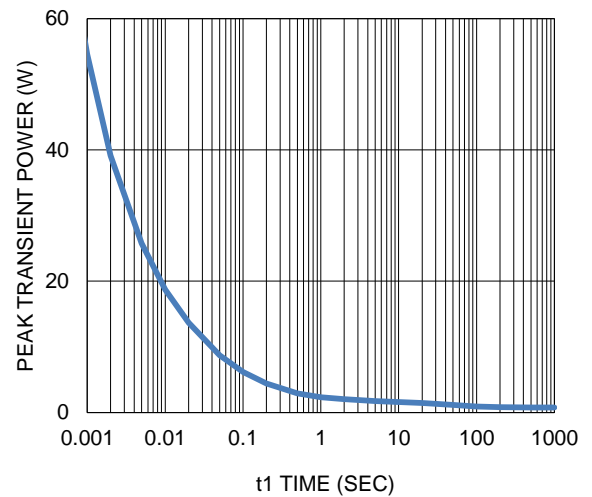
7. Gate Charge



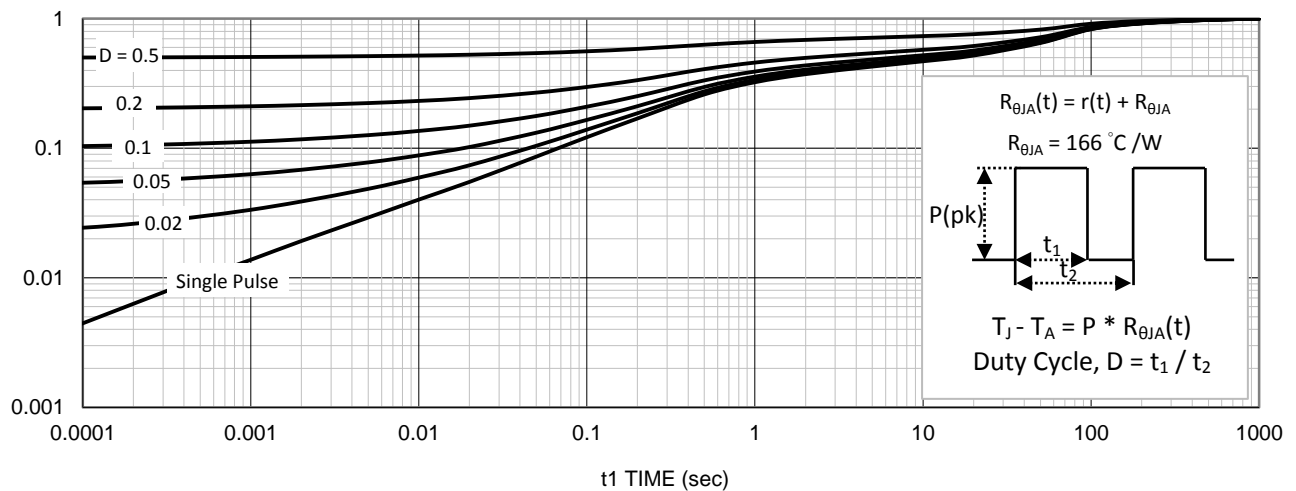
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

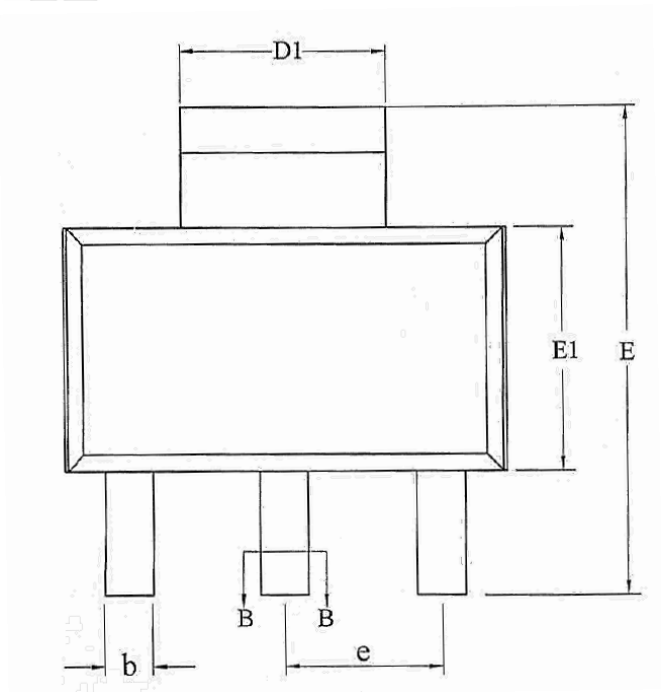
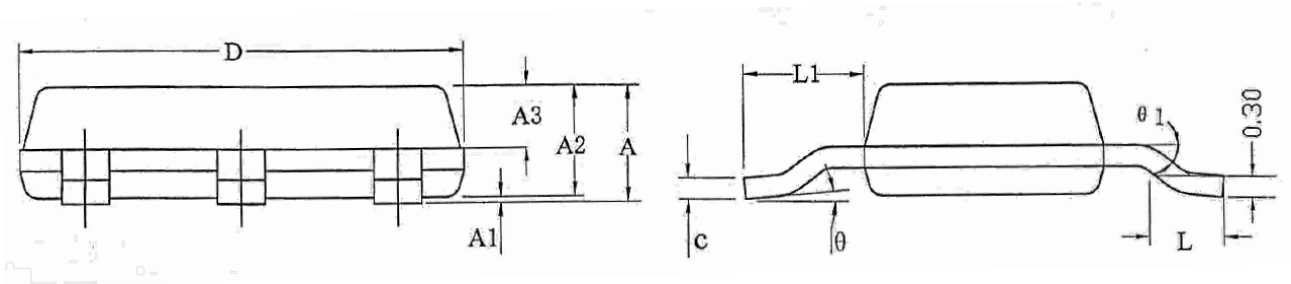


10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

Package Information



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.50	1.65	1.80
A1	0.03	0.06	0.09
A2	1.45	1.60	1.75
A3	0.80	0.90	1.00
b	0.69	—	0.78
b1	0.68	0.71	0.74
c	0.30	—	0.35
c1	0.29	0.30	0.31
D	6.30	6.50	6.70
D1	3.00REF		
E	6.80	7.00	7.20
E1	3.40	3.50	3.60
e	2.30BSC		
	0.90	—	—
L1	1.75BSC		
$\theta$	0	—	7°
$\theta_1$	37.5 REF		