

## N-Channel 80-V (D-S) MOSFET

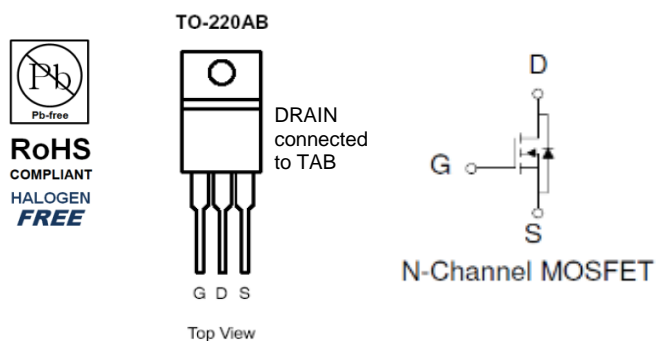
### Key Features:

- 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)
80	3.5 @ $V_{GS} = 10V$	200 <sup>a</sup>
	4.6 @ $V_{GS} = 4.5V$	



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		$V_{DS}$	80	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	
Continuous Drain Current <sup>a</sup>	$T_C = 25^\circ\text{C}$	$I_D$	200	A
Pulsed Drain Current <sup>b</sup>		$I_{DM}$	800	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$T_C = 25^\circ\text{C}$	$I_S$	200	A
Power Dissipation <sup>a</sup>	$T_C = 25^\circ\text{C}$	$P_D$	300	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>c</sup>	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
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

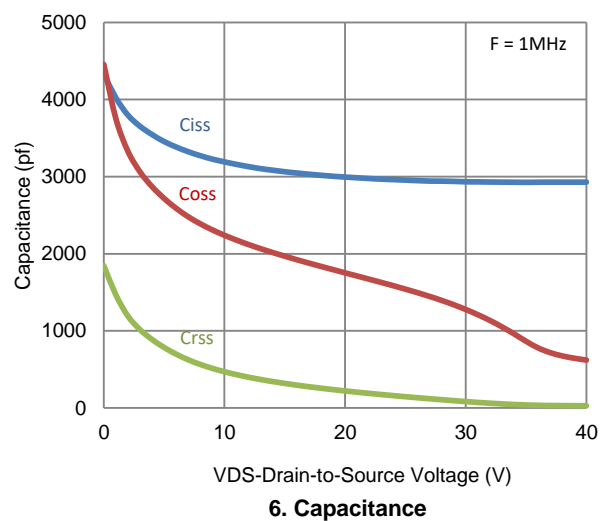
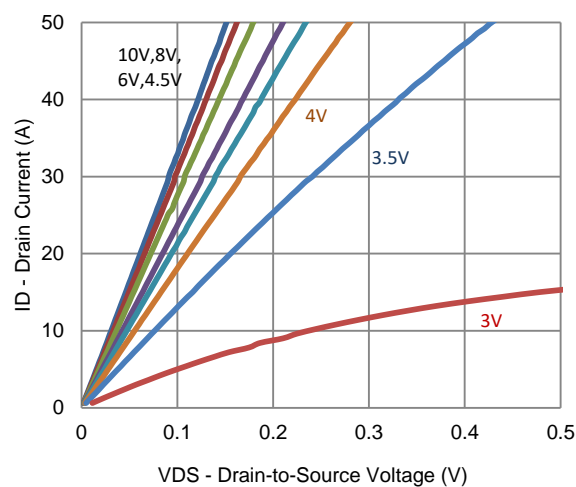
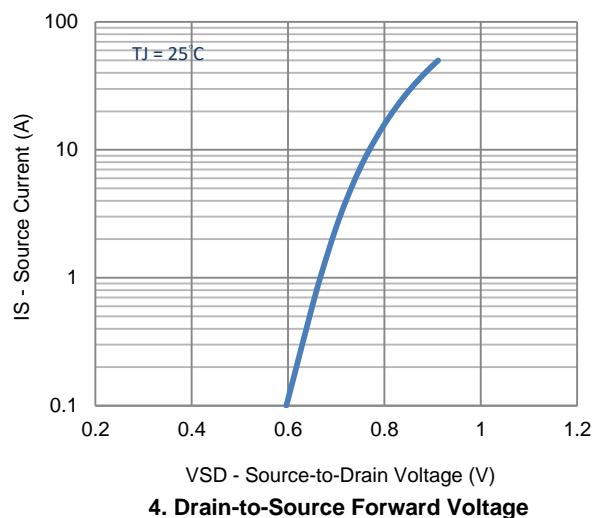
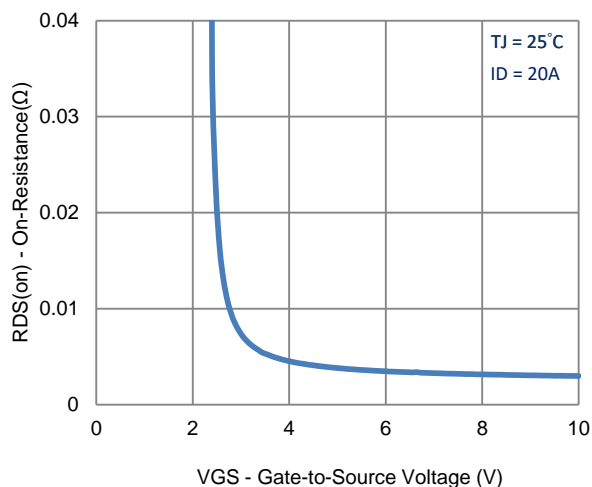
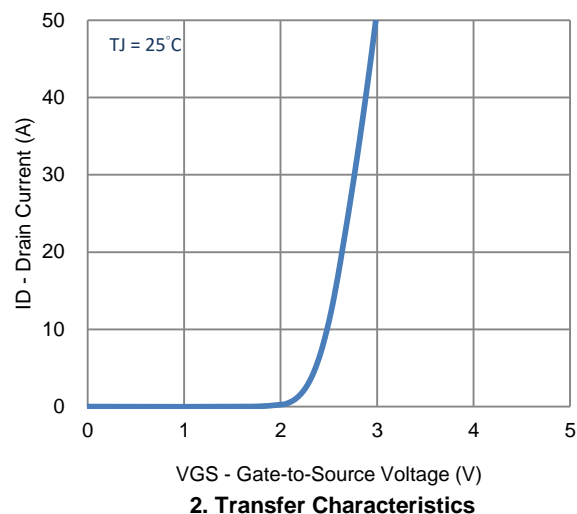
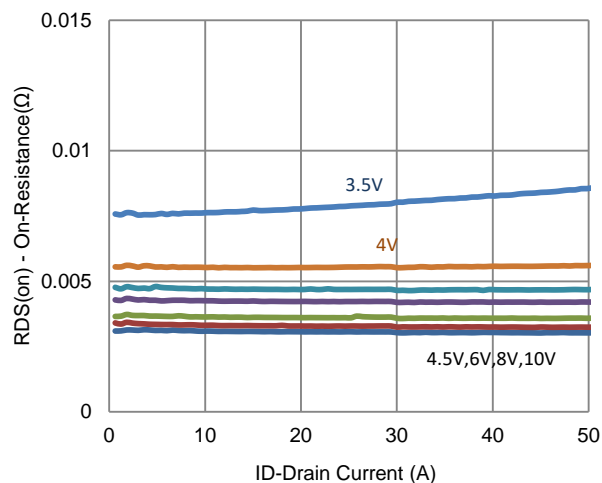
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250 \mu A$	1			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 V$ , $V_{GS} = \pm 20 V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 64 V$ , $V_{GS} = 0 V$			1	$\mu A$
		$V_{DS} = 64 V$ , $V_{GS} = 0 V$ , $T_J = 55^\circ C$			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>	$r_{DS(on)}$	$V_{GS} = 10 V$ , $I_D = 50 A$			3.5	m $\Omega$
		$V_{GS} = 4.5 V$ , $I_D = 40 A$			4.6	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 40 V$ , $I_D = 50 A$		80		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 50 A$ , $V_{GS} = 0 V$		0.9		V
<b>Dynamic <sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 30 V$ , $V_{GS} = 4.5 V$ , $I_D = 20 A$		40		nC
Gate-Source Charge	$Q_{gs}$			10		
Gate-Drain Charge	$Q_{gd}$			20		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 40 V$ , $R_L = 2 \Omega$ , $I_D = 20 A$ , $V_{GEN} = 10 V$ , $R_{GEN} = 6 \Omega$		11		ns
Rise Time	$t_r$			18		
Turn-Off Delay Time	$t_{d(off)}$			116		
Fall Time	$t_f$			79		
Input Capacitance	$C_{iss}$	$V_{DS} = 40 V$ , $V_{GS} = 0 V$ , $f = 1 Mhz$		2929		pF
Output Capacitance	$C_{oss}$			621		
Reverse Transfer Capacitance	$C_{rss}$			28		

## Notes

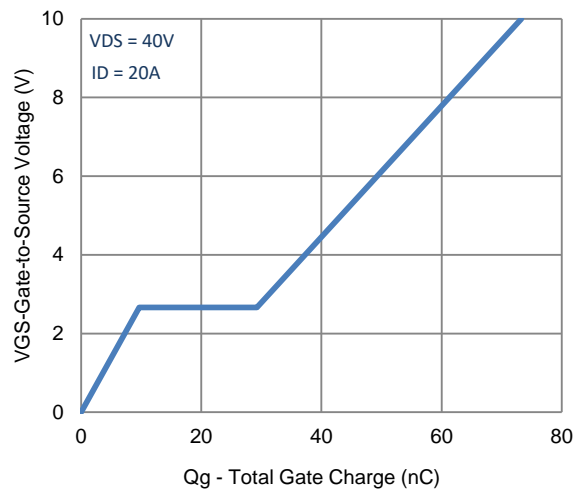
- Pulse test: PW  $\leq$  300us duty cycle  $\leq$  2%.
- Guaranteed by design, not subject to production testing.

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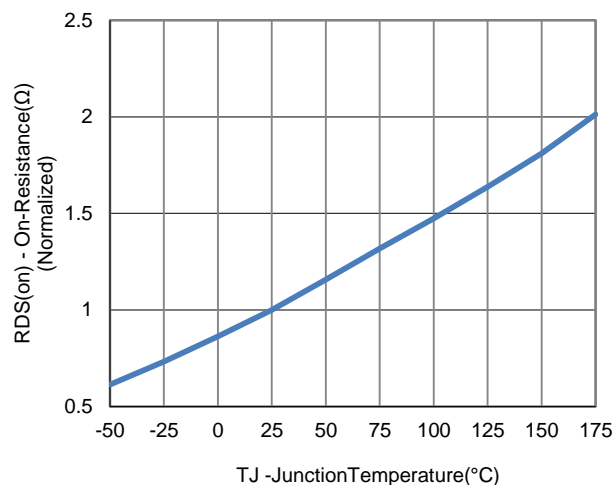
## Typical Electrical Characteristics



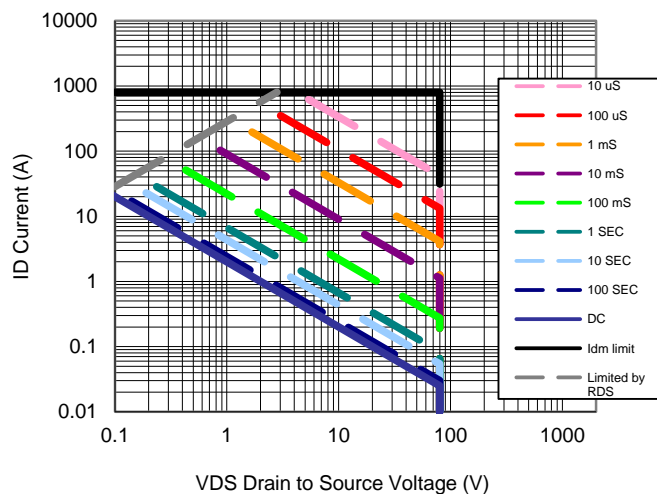
## Typical Electrical Characteristics



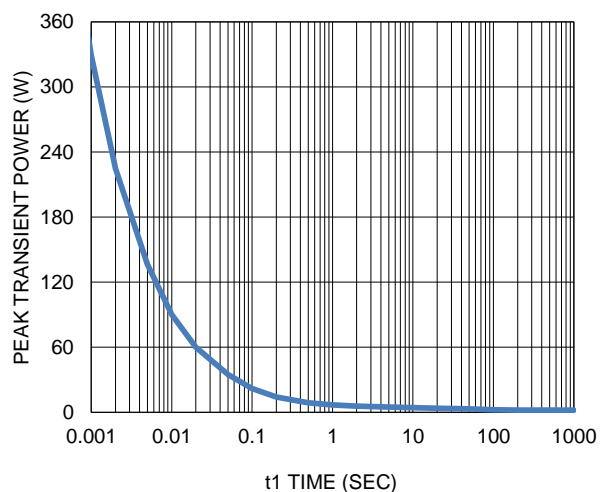
7. Gate Charge



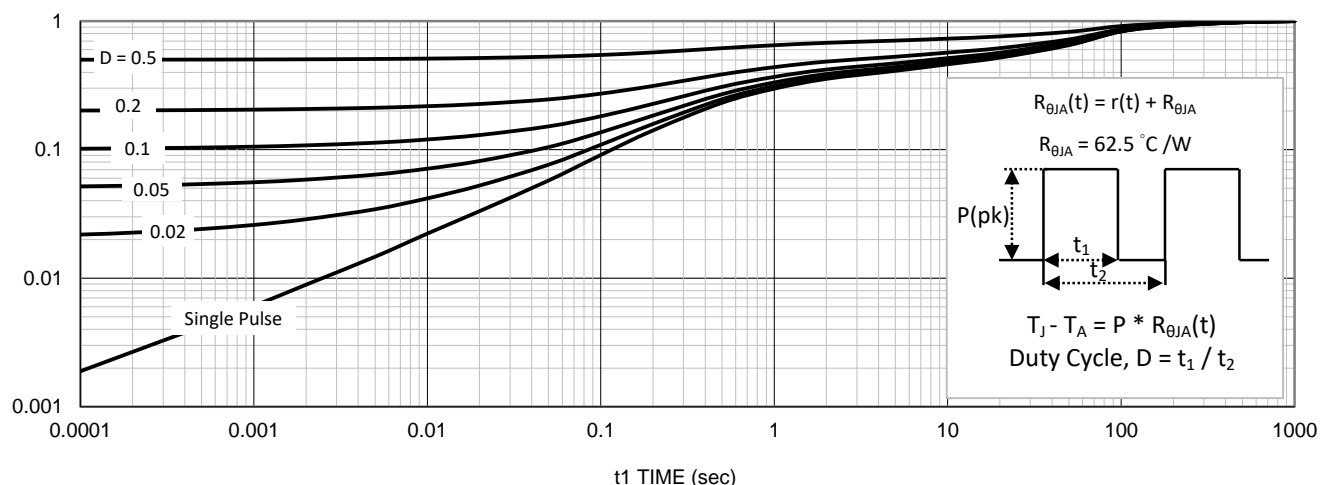
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

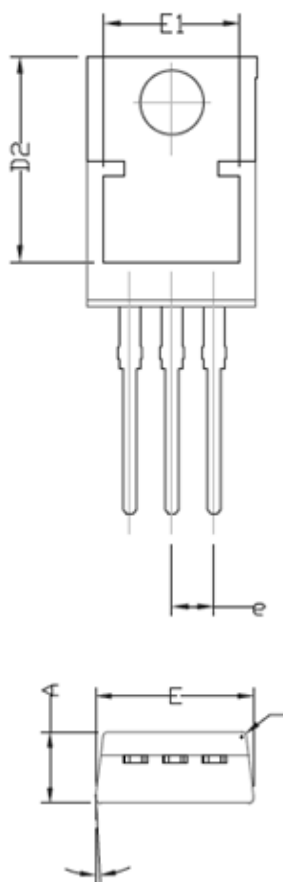
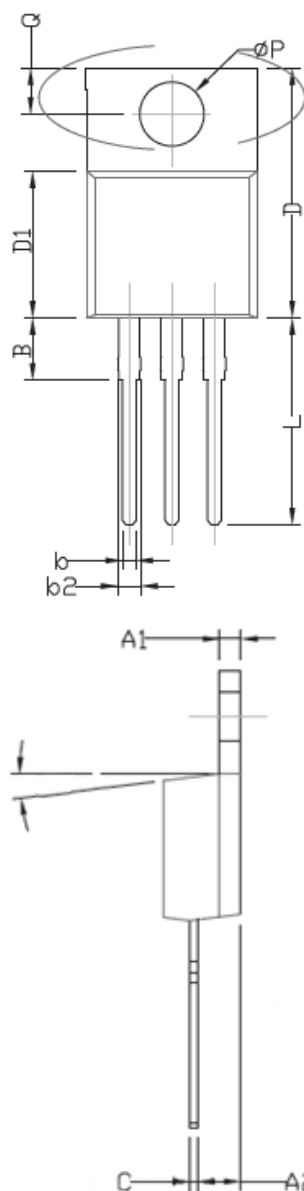


10. Single Pulse Maximum Power Dissipation

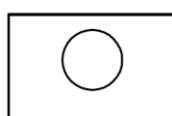


11. Normalized Thermal Transient Junction to Ambient

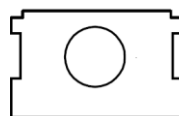
## Package Information



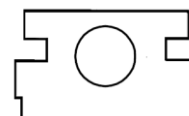
DIM.	MILLIMETERS	
	MIN	MAX
A	4.24	4.72
A1	1.11	1.41
A2	2.22	2.7
B	2.6	3.9
b	0.66	0.94
b2	1.17	1.45
c	0.4	0.6
D	14.5	15.74
D1	8.4	9.65
D2	12.08	12.48
E	9.7	10.54
E1	8	8.4
e	2.49	2.59
L	12.27	14.5
ØP	3.55	3.89
Q	2.58	2.98



Option 1



Option 2



Option 3

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