

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

Key Features:

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

Typical Applications:

- White LED boost converters
- Automotive Systems
- Industrial DC/DC Conversion Circuits



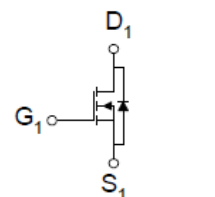
RoHS
COMPLIANT
HALOGEN
FREE

TO-220AB



G D S

Top View



N-Channel MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
80	11 @ $V_{GS} = 10V$	90 ^a
	13 @ $V_{GS} = 4.5V$	

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}	± 20	
Continuous Drain Current ^a	I_D	90a	A
Pulsed Drain Current ^b	I_{DM}	350	
Continuous Source Current (Diode Conduction) ^a	I_S	120	
Power Dissipation ^a	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 ^a	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
		0.5	

Notes

- Package Limited
- Pulse width limited by maximum junction temperature

Electrical Characteristics

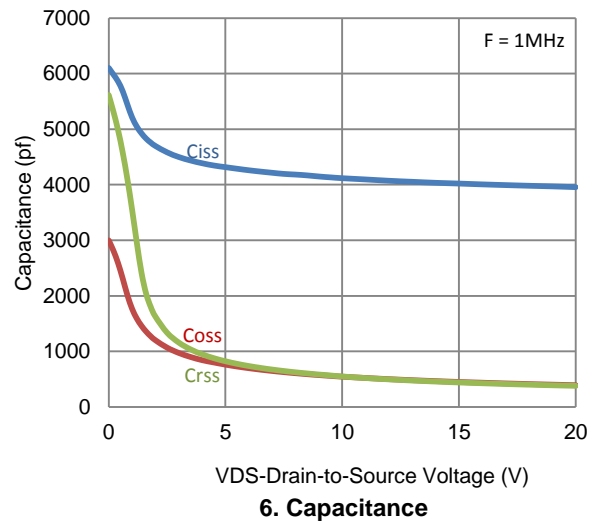
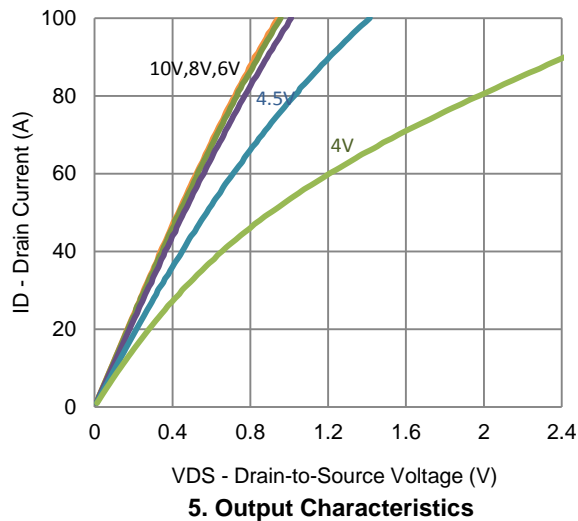
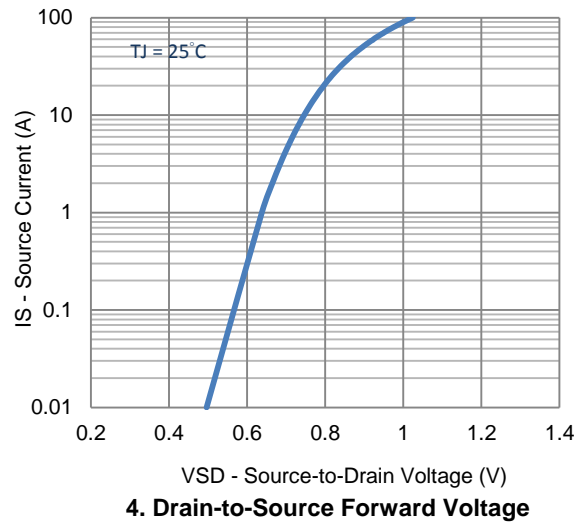
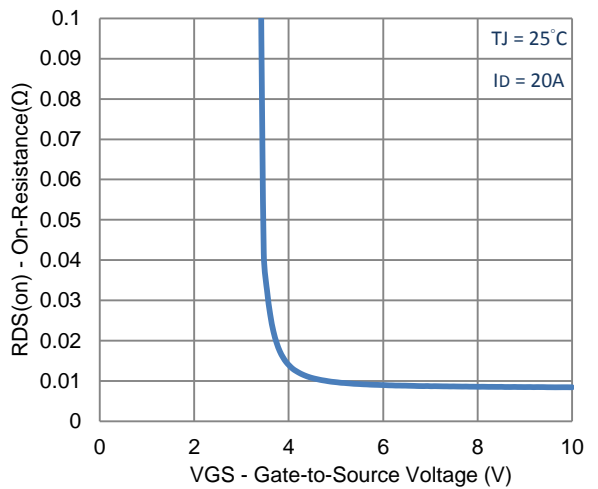
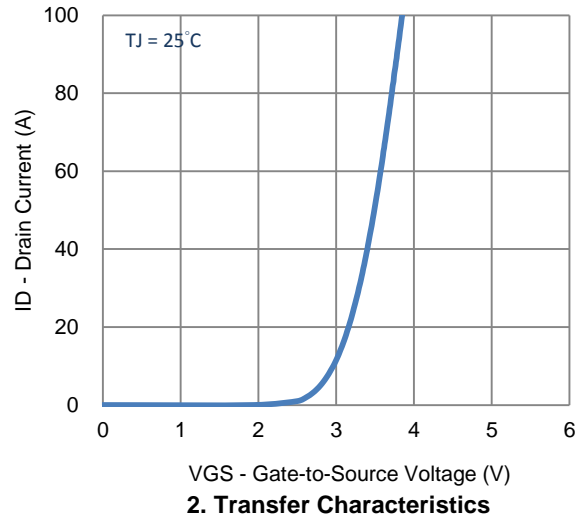
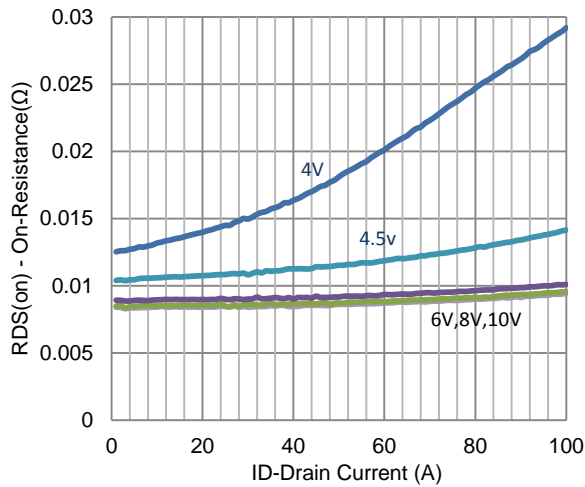
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu A$	1			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 64 V, V_{GS} = 0 V$			1	uA
		$V_{DS} = 64 V, V_{GS} = 0 V, T_J = 55^\circ C$			25	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = 5 V, V_{GS} = 10 V$	45			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = 10 V, I_D = 45 A$			11	mΩ
		$V_{GS} = 4.5 V, I_D = 44 A$			13	
Forward Transconductance	g_{fs}	$V_{DS} = 15 V, I_D = 45 A$		40		S
Diode Forward Voltage	V_{SD}	$I_S = 60 A, V_{GS} = 0 V$		0.9		V
Dynamic						
Total Gate Charge	Q_g	$V_{DS} = 40 V, V_{GS} = 4.5 V, I_D = 20 A$		58		nC
Gate-Source Charge	Q_{gs}			14		
Gate-Drain Charge	Q_{gd}			39		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = 40 V, R_L = 2 \Omega, I_D = 20 A,$ $V_{GEN} = 10 V, R_{GEN} = 6 \Omega$		19		ns
Rise Time	t_r			45		
Turn-Off Delay Time	$t_{d(off)}$			178		
Fall Time	t_f			62		
Input Capacitance	C_{iss}	$V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz$		4021		pF
Output Capacitance	C_{oss}			449		
Reverse Transfer Capacitance	C_{rss}			440		

Notes

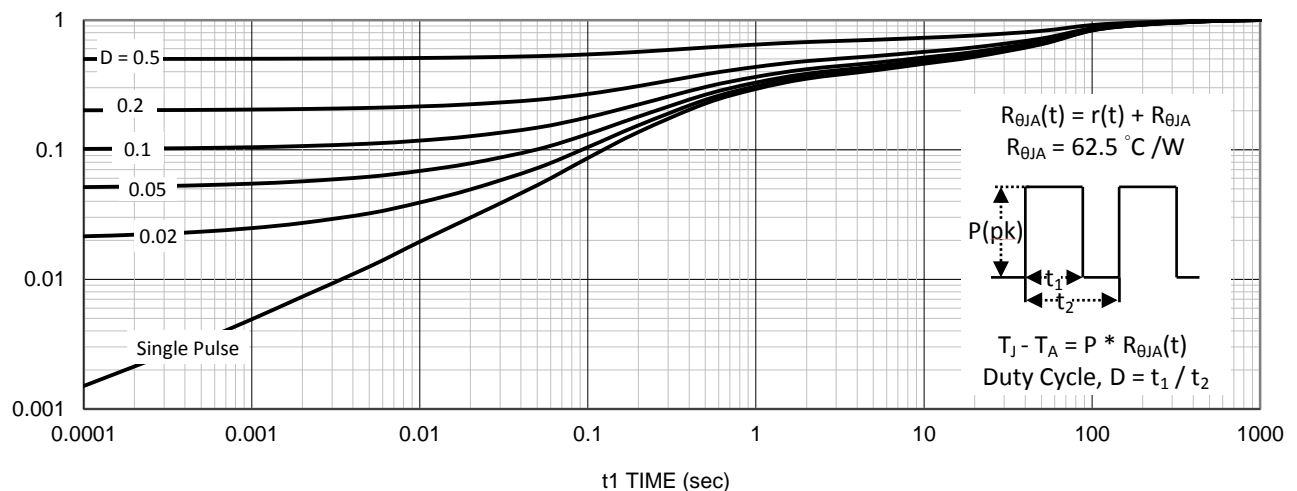
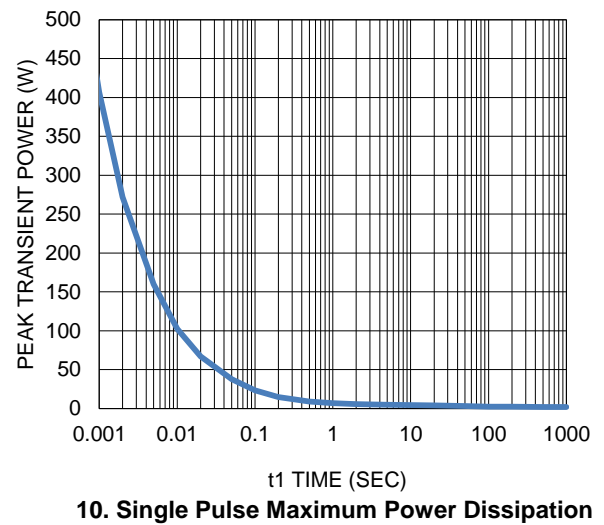
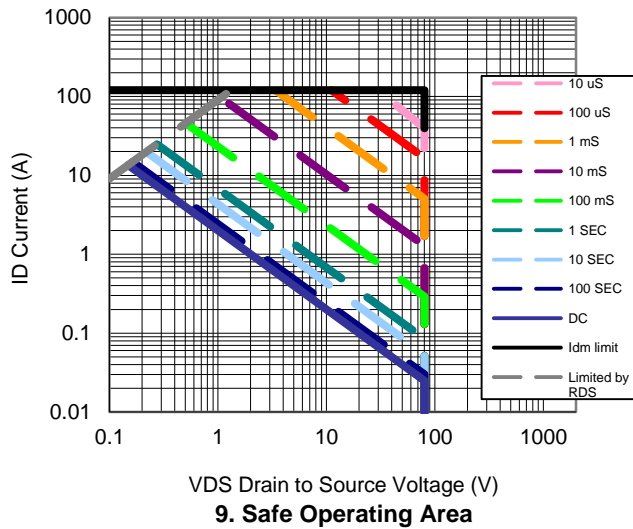
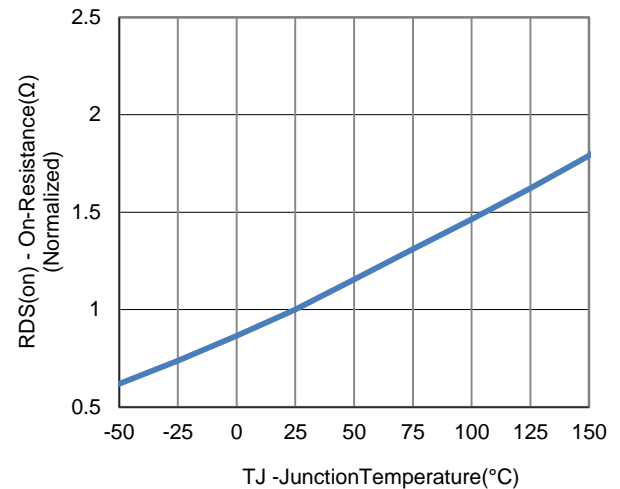
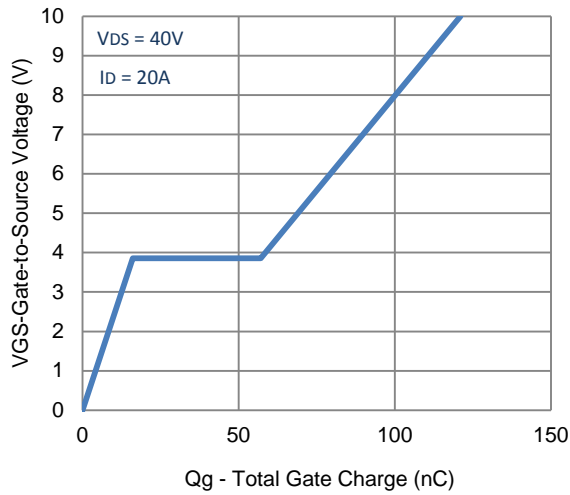
- Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

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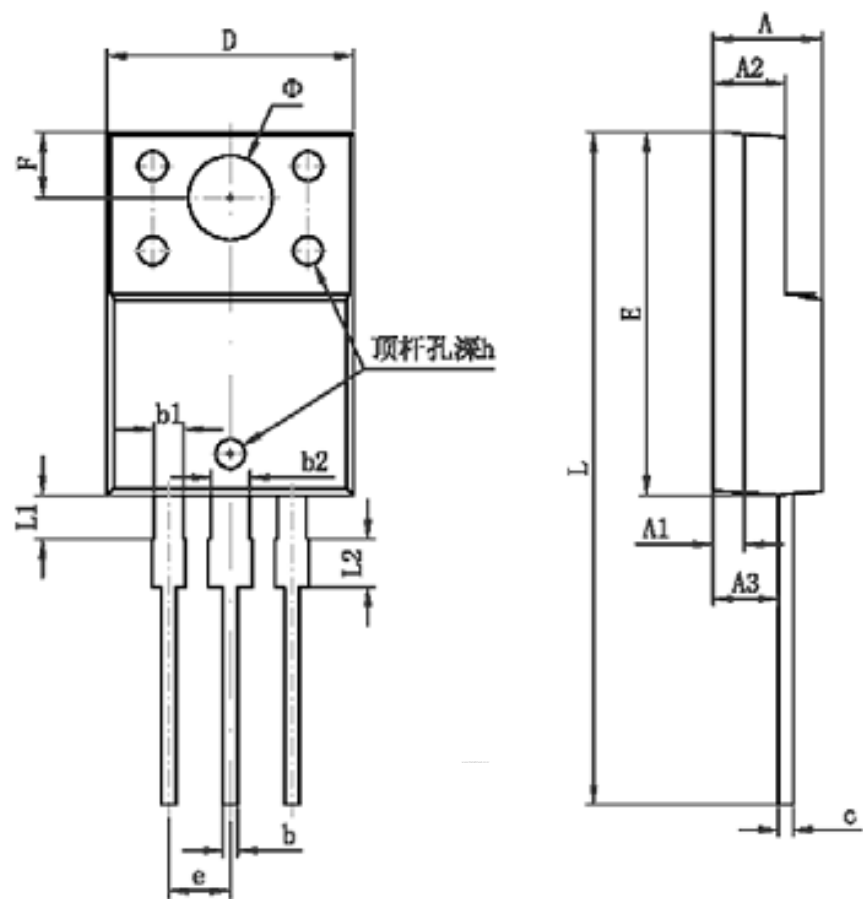
Typical Electrical Characteristics



Typical Electrical Characteristics



Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.300	4.700	0.169	0.185
A1	1.300 REF		0.051 REF	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.500	0.750	0.020	0.030
b1	1.100	1.350	0.043	0.053
b2	1.500	1.750	0.059	0.069
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 TYP		0.100 TYP	
F	2.700 REF		0.106 REF	
Φ	3.500 REF		0.138 REF	
h	0.000	0.300	0.000	0.012
L	28.000	28.400	1.102	1.118
L1	1.700	1.900	0.067	0.075
L2	1.900	2.100	0.075	0.083