

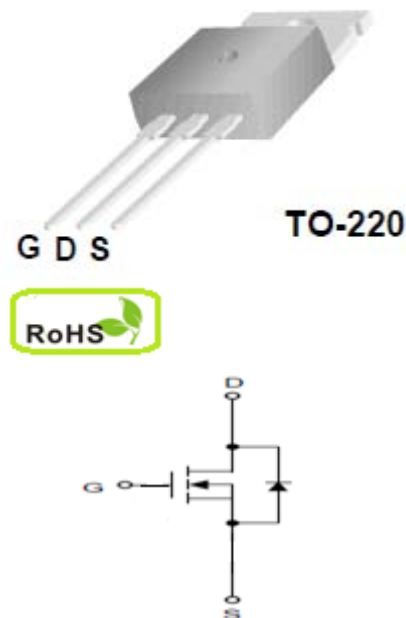
■ FEATURES

- 80V/120A
RDS(ON)= 6.5mΩ typ@ VGS=10V
- Lead free and Green Device Available
- Low Rds-on to Minimize Conductive Loss
- High avalanche Current

■ Application

- Power Supply
- DC-DC Converters
- E-Bike

■ PIN DESCRIPTION



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter		Maximum	Unit
V _{DSS}	Drain-to-Source Voltage		80	V
V _{GSS}	Gate-to-Source Voltage		±25	V
I _D ³	Continuous Drain Current	T _C =25°C	120	A
		T _C =100°C	80	
I _{DP} ⁴	Pulsed Drain Current	T _C =25°C	360	
I _{AS} ⁵	Avalanche Current		25	mJ
EAS ⁵	Avalanche energy		300	
PD	Maximum Power Dissipation	T _C =25°C	195	W
		T _C =100°C	97	
T _J , T _{STG}	Junction & Storage Temperature Range		-55~175	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
Rθjc	Thermal Resistance-Junction to Case	0.79	°C/W
Rθja	Thermal Resistance-Junction to Ambient	62.5	

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	80	—	—	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =64V, V _{GS} =0V	—	—	1	uA
		T _J =125°C	—	—	10	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V	—	—	±100	nA
R _{DS(on)} ¹	Drain-Source On-Resistance	V _{GS} =10V, I _D =40A	—	6.5	7.5	mΩ
			—	—	—	
Diode Characteristics						
V _{SD} ¹	Diode Forward Voltage	I _{SD} =40A, V _{GS} =0V	—	—	1.3	V
I _S ³	Diode Continuous Forward Current		—	—	140	A
t _{rr}	Reverse Recovery Time	I _F =40A,	—	55	—	nS
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/us	—	100	—	nC
Dynamic Characteristics ²						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, Frequency=1MHz	—	1	—	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =25V Frequency=1MHz	—	2700	—	pF
C _{oss}	Output Capacitance		—	540	—	
C _{rss}	Reverse Transfer Capacitance		—	180	—	
t _{d(on)}	Turn-On Delay Time	V _{DD} =40V, I _D =40A, V _{GS} =10V, R _G =6Ω	—	23	—	nS
t _r	Rise Time		—	41	—	
t _{d(off)}	Turn-Off Delay Time		—	59	—	
t _f	Fall Time		—	19	—	
Gate Charge Characteristics ²						
Q _g	Total Gate Charge	V _{DS} =64V, V _{GS} =10V I _D =40A	—	75	—	nC
Q _{gs}	Gate-to-Source Charge		—	12	—	
Q _{gd}	Gate-to-Drain Charge		—	28	—	

Note: 1: Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

2: Guaranteed by design, not subject to production testing.

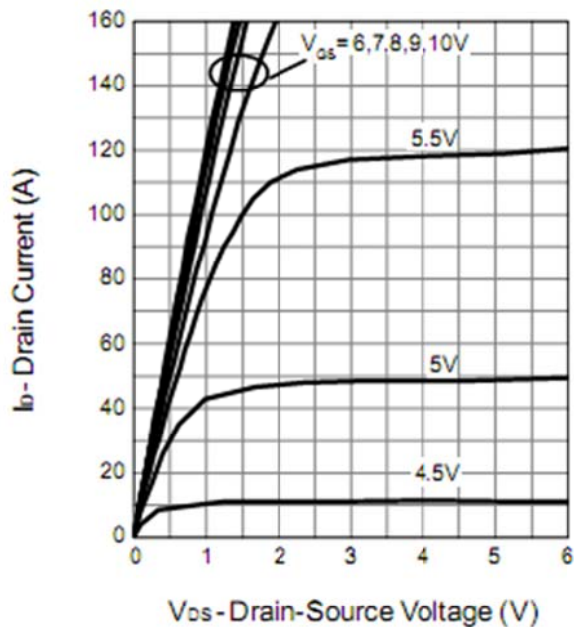
3: Package limitation current is 55A. Calculated continuous current based on maximum allowable junction temperature.

4: Repetitive rating, pulse width limited by max junction temperature.

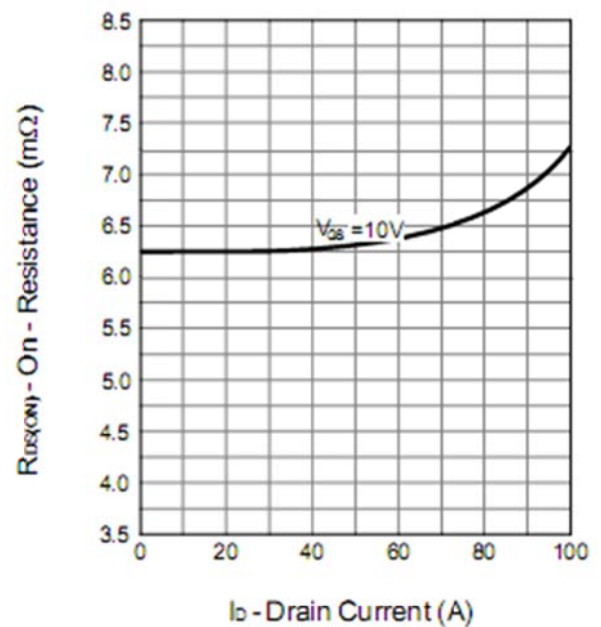
5: Starting $T_J = 25^\circ C$, $L = 0.5mH$, $V_{DD}=64V$, $I_{AS} = 50A$.

Typical Operating Characteristics

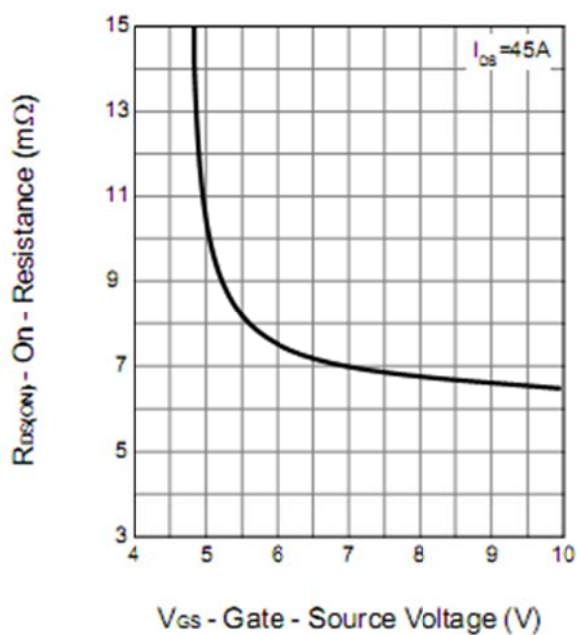
Output Characteristics



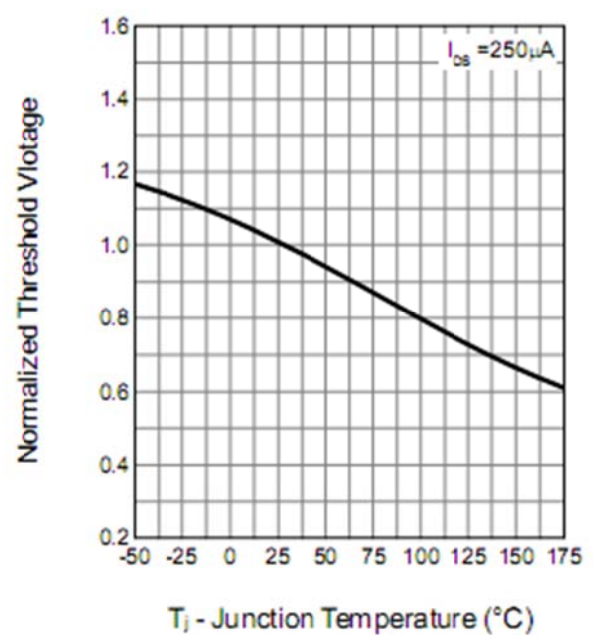
Drain-Source On Resistance



Drain-Source On Resistance

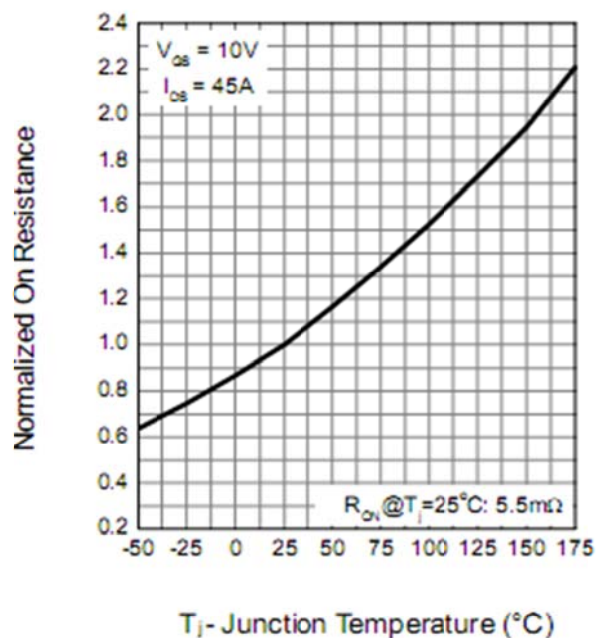


Gate Threshold Voltage

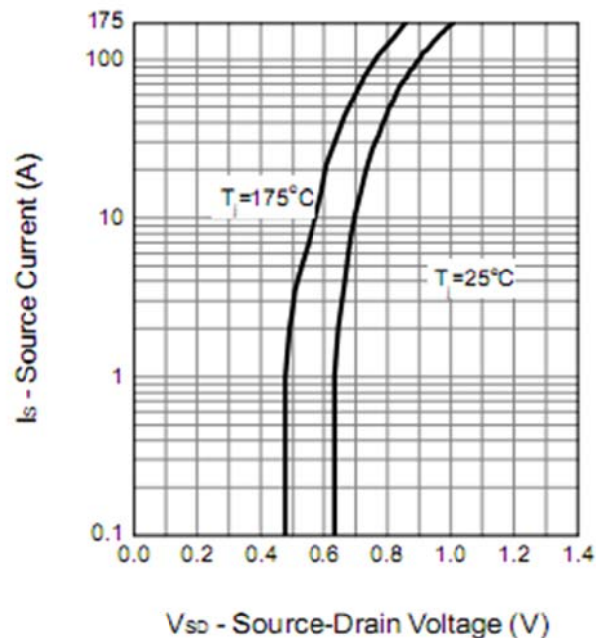


Typical Operating Characteristics

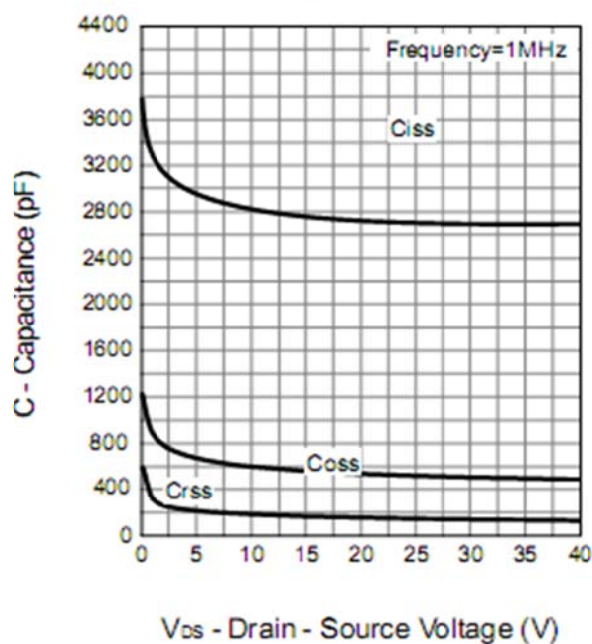
Drain-Source On Resistance



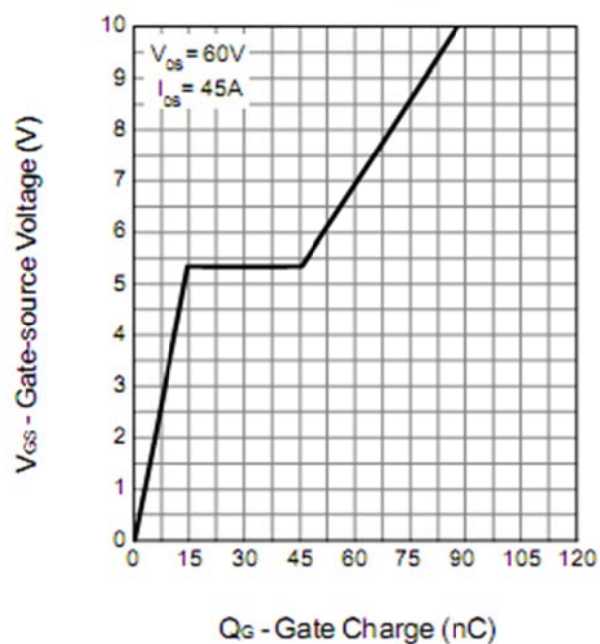
Source-Drain Diode Forward



Capacitance



Gate Charge



Typical Operating Characteristics

