

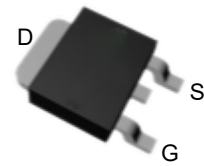
Features

- 80V/80A*
 $R_{DS(ON)}=5.5\text{m}\Omega(\text{typ.})@V_{GS}=10\text{V}$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)
- Moisture Sensitivity Level MSL1
(per JEDEC J-STD-020D)

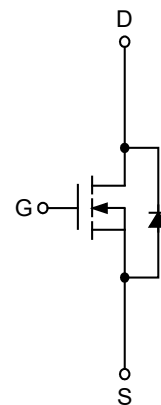
Applications

- Power Management for SMPS synchronous rectification.
- Mobile USB-PD and quick charge adaptor.

Pin Description



TO-252-2



N-Channel MOSFET

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		80	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _C =25°C	50	A
I _D	Continuous Drain Current	T _C =25°C	80 [*]	A
		T _C =100°C	63	
I _{DM}	Pulsed Drain Current	T _C =25°C	300 ^a	
P _D	Maximum Power Dissipation	T _C =25°C	104	W
		T _C =100°C	41.6	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	1.2	°C/W
I _D	Continuous Drain Current	T _A =25°C	15.4	A
		T _A =70°C	12.3	
P _D	Maximum Power Dissipation	T _A =25°C	2.5	W
		T _A =70°C	1.6	
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	Steady State	50	°C/W
I _{AS} ^c	Avalanche Current, Single pulse	L=0.5mH	29	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.5mH	210	mJ

Note * : Current limited by bonding wire.

Note a : Pulse width limited by maximum junction temperature.

Note b : Surface mounted on 1in² pad area.

Note c : UIS tested and pulse width limited by maximum junction temperature (initial temperature $T_J=25^{\circ}\text{C}$).

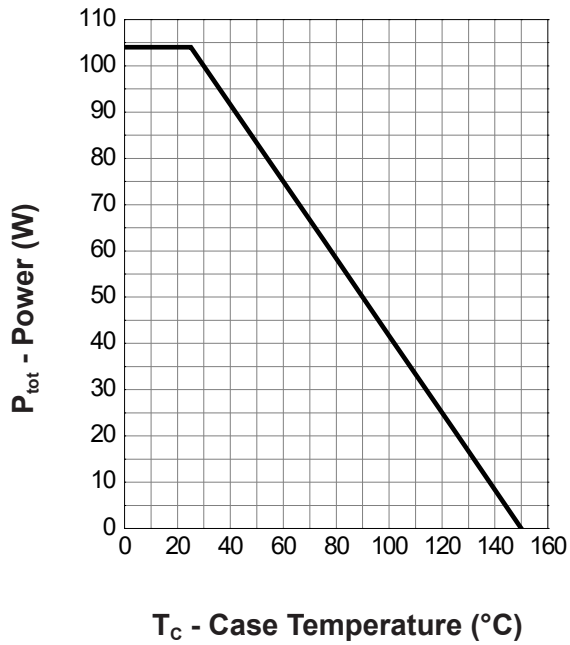
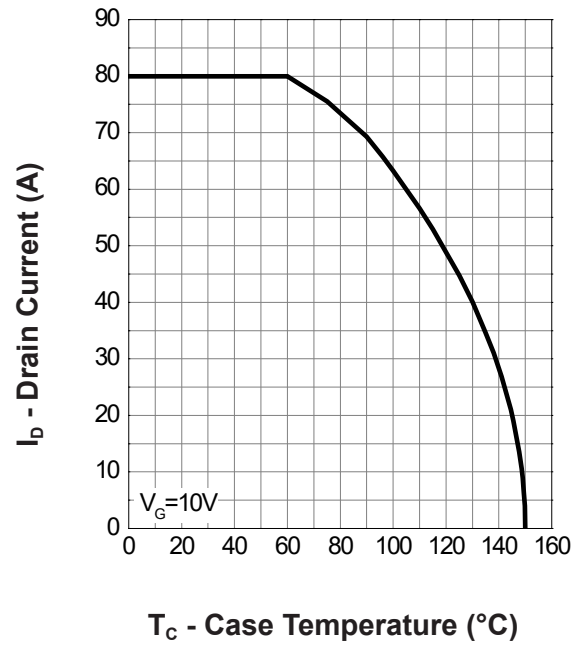
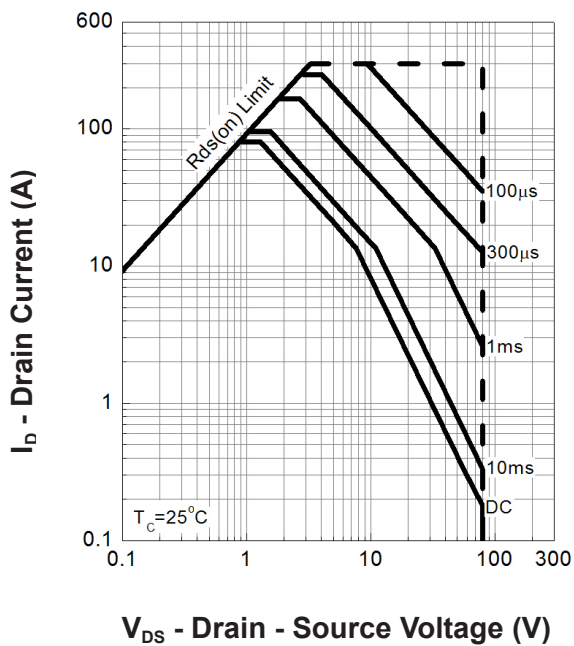
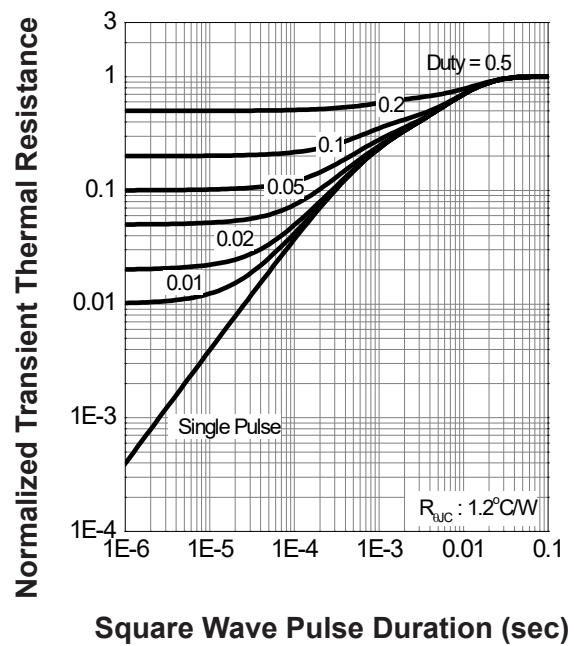
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	80	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =64V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =40A	-	5.5	6.7	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =20A, V _{GS} =0V	-	0.8	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =40A, dI _{SD} /dt=100A/μs	-	46	-	ns
Q _{rr}	Reverse Recovery Charge		-	65	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =40V, Frequency=1.0MHz	-	2120	2680	pF
C _{oss}	Output Capacitance		-	240	-	
C _{rss}	Reverse Transfer Capacitance		-	50	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	21	38	ns
t _r	Turn-on Rise Time		-	9	16	
t _{d(OFF)}	Turn-off Delay Time		-	72	130	
t _f	Turn-off Fall Time		-	67	121	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =40V, V _{GS} =4.5V, I _{DS} =40A	-	28	-	nC
Q _g	Total Gate Charge	V _{DS} =40V, V _{GS} =10V, I _{DS} =40A	-	62	87	
Q _{gs}	Gate-Source Charge		-	14.4	-	
Q _{gd}	Gate-Drain Charge		-	8.4	-	

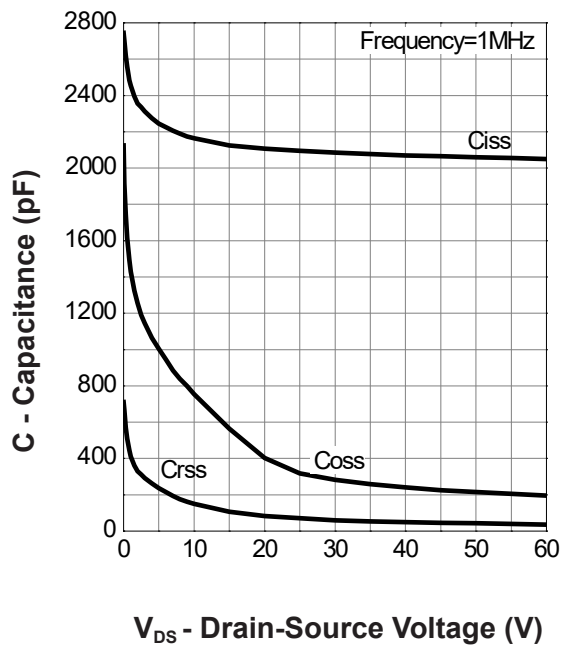
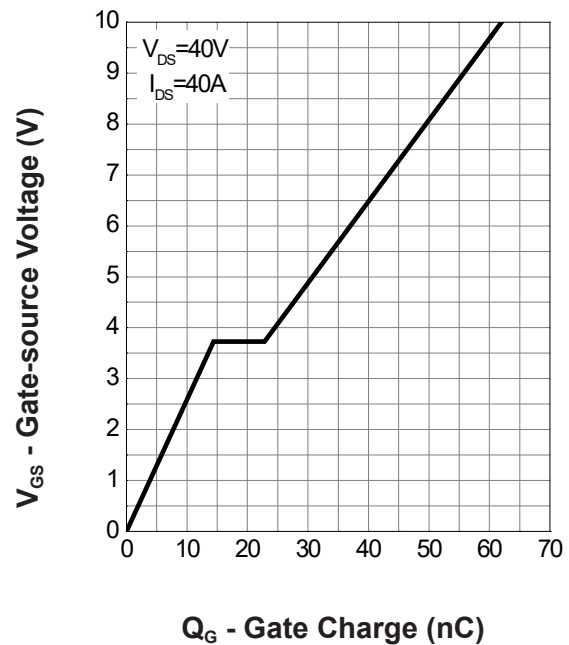
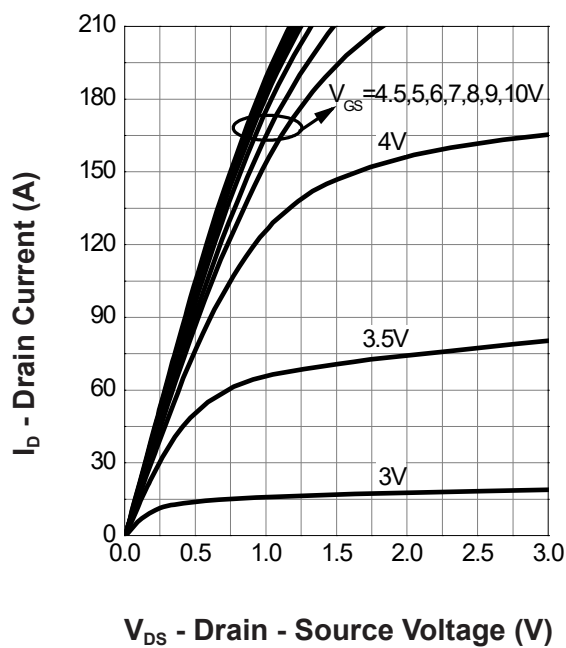
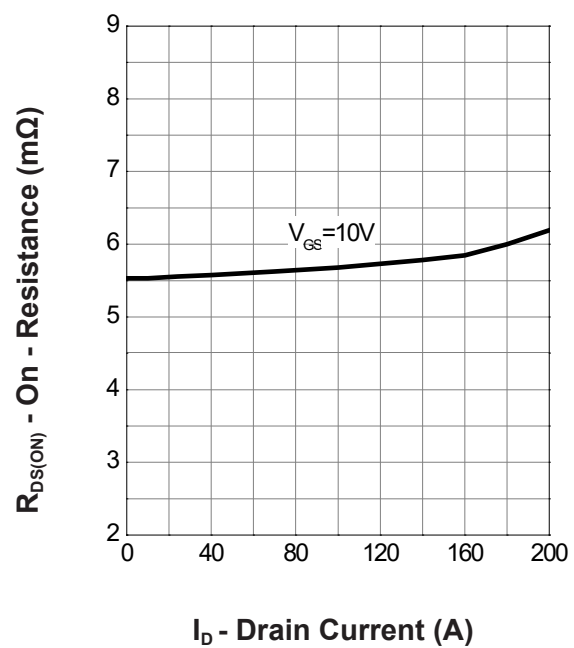
Note d : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Note e : Guaranteed by design, not subject to production testing.

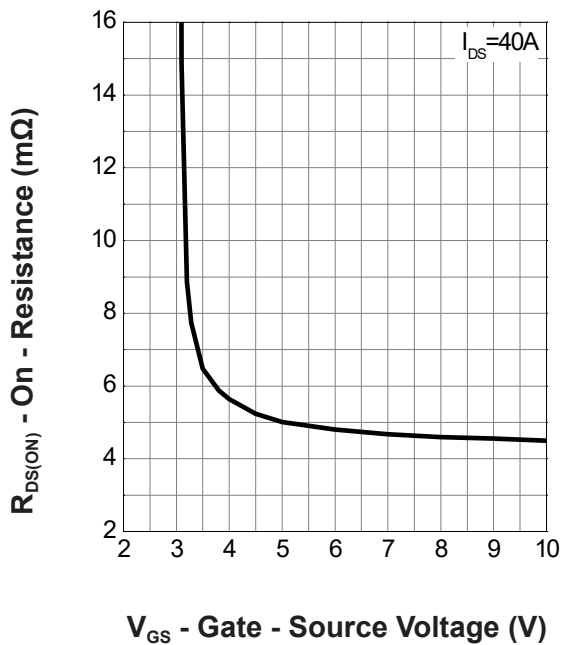
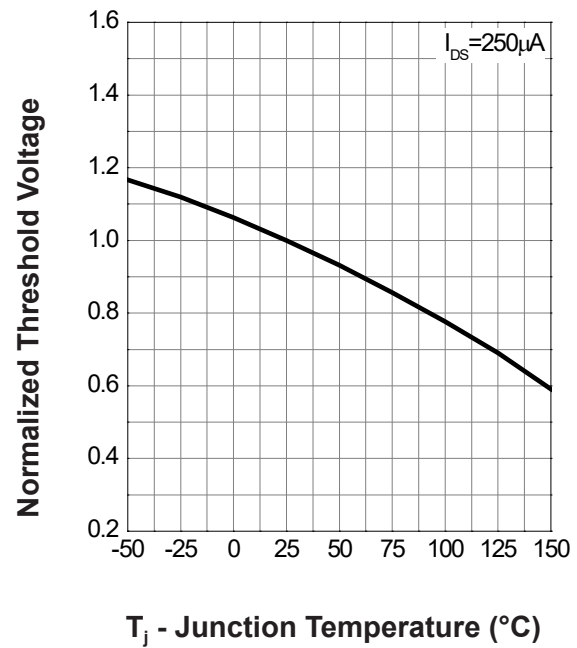
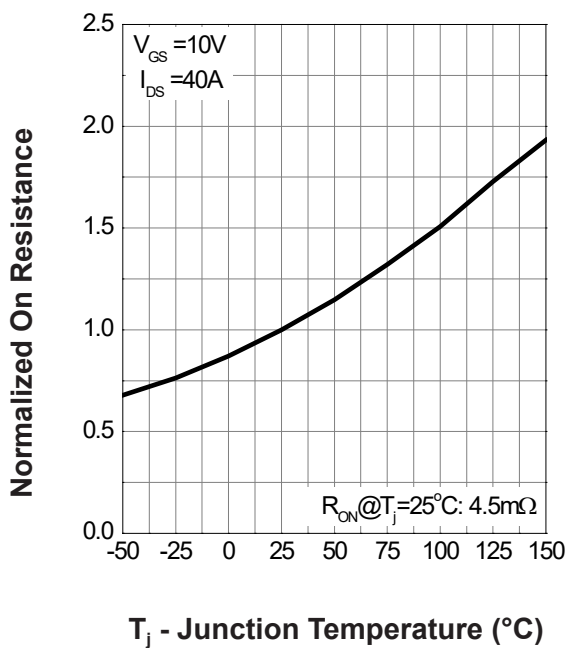
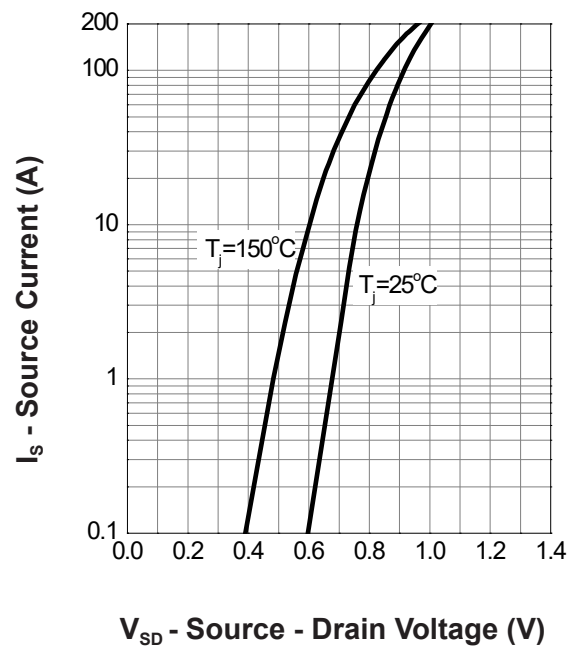
Typical Operating Characteristics

Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


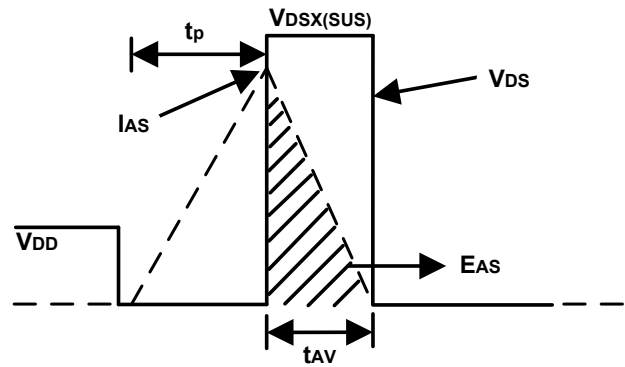
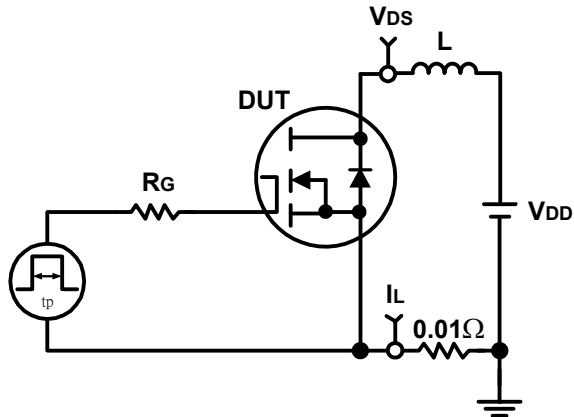
Typical Operating Characteristics(Cont.)

Capacitance

Gate Charge

Output Characteristics

Drain-Source On Resistance


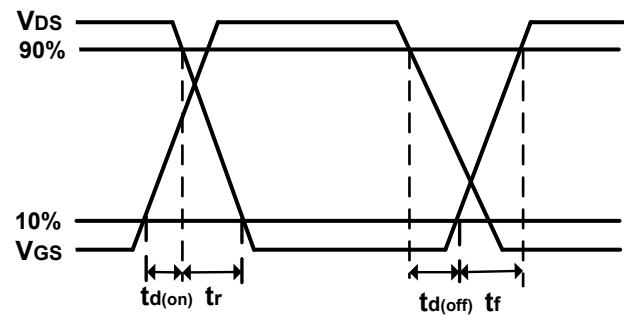
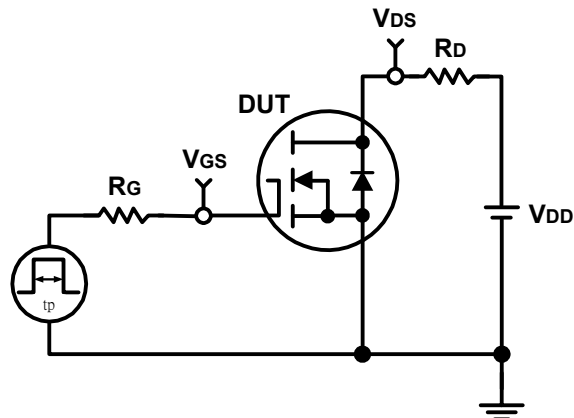
Typical Operating Characteristics(Cont.)

Gate-Source On Resistance

Gate Threshold Voltage

Drain-Source On Resistance

Source-Drain Diode Forward


Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Package Information

