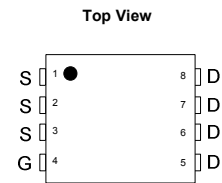
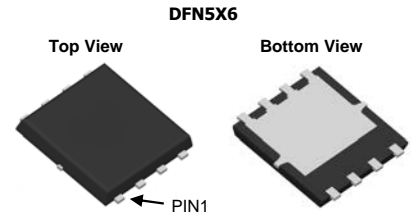


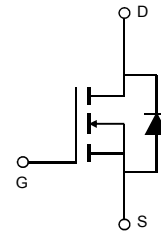
Features:

- $V_{DS} = 100V, I_D = 80A$
 $R_{DS(ON)} = 6.7m\Omega @ V_{GS}=10V$
 $R_{DS(ON)} = 8.4m\Omega @ V_{GS}=4.5V$
- N-channel, optimized for high-speed smooth switching
- Excellent Gate Charge $\times R_{DS(ON)}$ (FOM)
- Very low on-resistance
- RoHS compliant
- Halogen-free



Applications:

- DC-DC Converter
- Power Management
- Motor Drivers
- Load Switching



Absolute Maximum Ratings ($T_C=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	80	A
Drain Current-Continuous($T_C=100^\circ C$)	$I_D(100^\circ C)$	63.5	A
Pulsed Drain Current	I_{DM}	240	A
Maximum Power Dissipation	P_D	52	W
Derating factor		1.50	W/ $^\circ C$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 175	$^\circ C$

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	100		-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics ^(Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.5	2.2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	6.7	9.0	mΩ
		V _{GS} =4.5V, I _D =10A	-	8.4	12.5	
Forward Transconductance	g _{FS}	V _{DS} =80V, I _D =20A	26	-	-	S
Dynamic Characteristics ^(Note4)						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, F=1.0MHz		1987		PF
Output Capacitance	C _{Oss}			629		PF
Reverse Transfer Capacitance	C _{rss}			12		PF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =50V, I _D =20A, R _L =1Ω V _{GS} =10V, R _G =3Ω	-	15	-	nS
Turn-on Rise Time	t _r		-	28	-	nS
Turn-Off Delay Time	t _{d(off)}		-	46	-	nS
Turn-Off Fall Time	t _f		-	42	-	nS
Total Gate Charge	Q _g	V _{DS} =50V, I _D =20A, V _{GS} =10V	-	39		nC
Gate-Source Charge	Q _{gs}		-	6.6		nC
Gate-Drain Charge	Q _{gd}		-	8.6		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =20A	-	0.7	1.2	V
Diode Forward Current ^(Note 2)	I _S		-	-	62	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = 20A	-	177	-	nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs ^(Note3)	-	1290	-	nC
Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Electrical Characteristics Diagrams

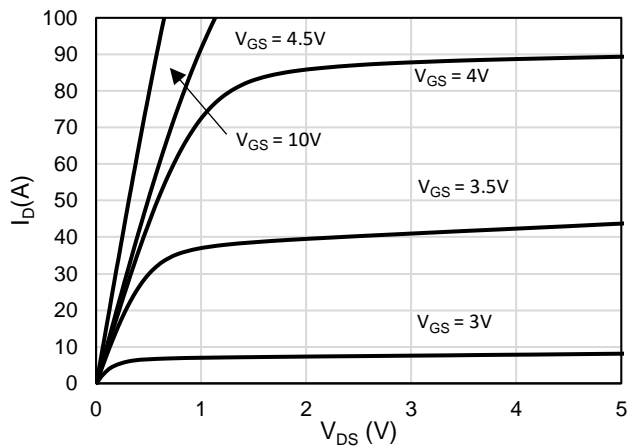


Figure 1: On-Region Characteristics

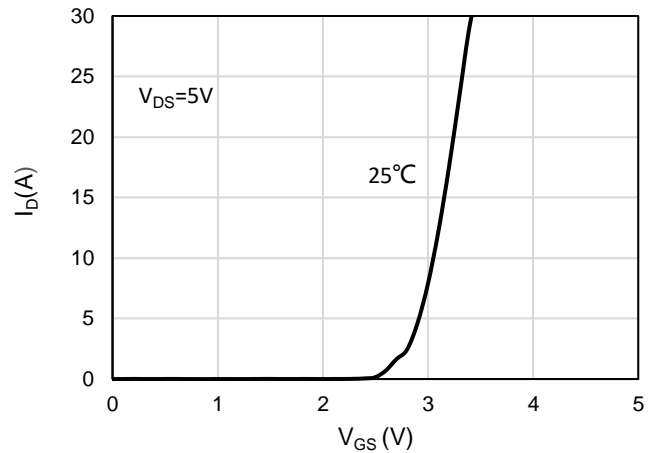


Figure 2: Transfer Characteristics

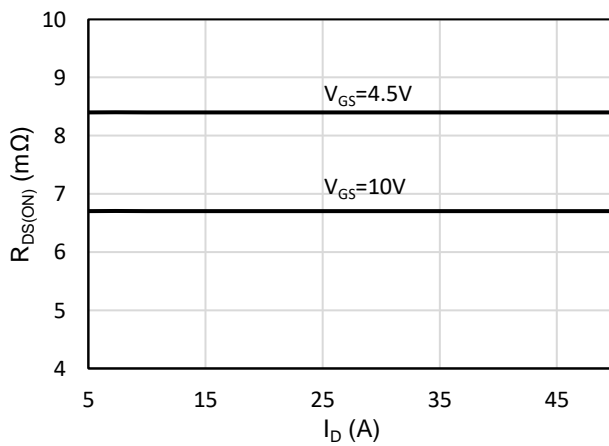


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

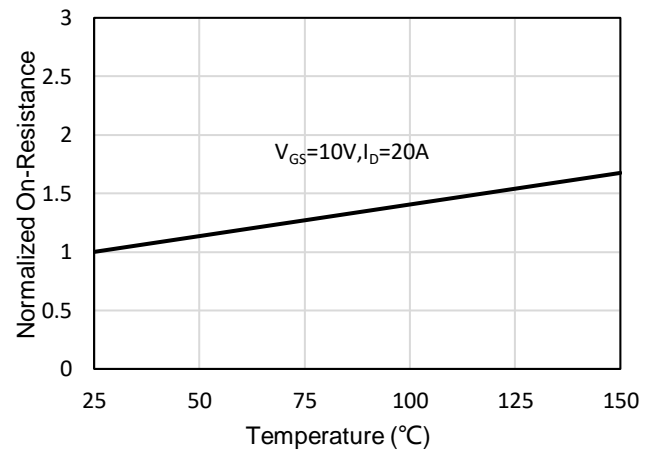


Figure 4: On-Resistance vs. Junction Temperature

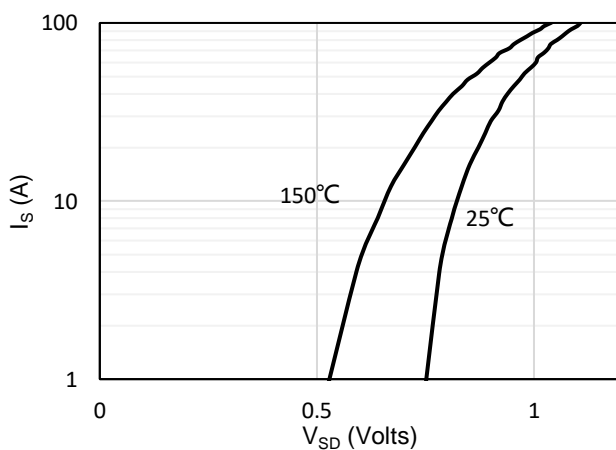


Figure 5: Body-Diode Characteristics

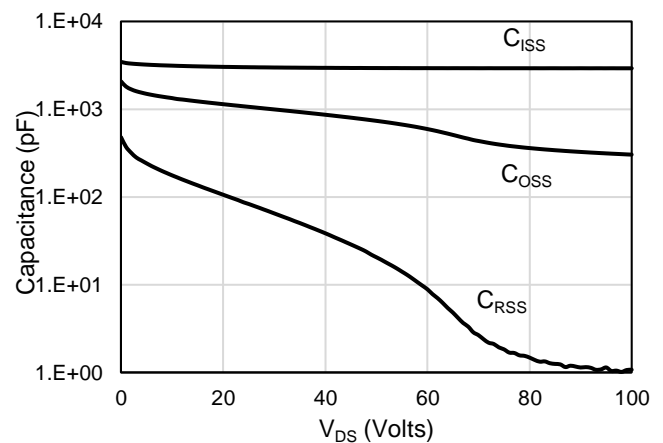


Figure 6: Capacitance Characteristics

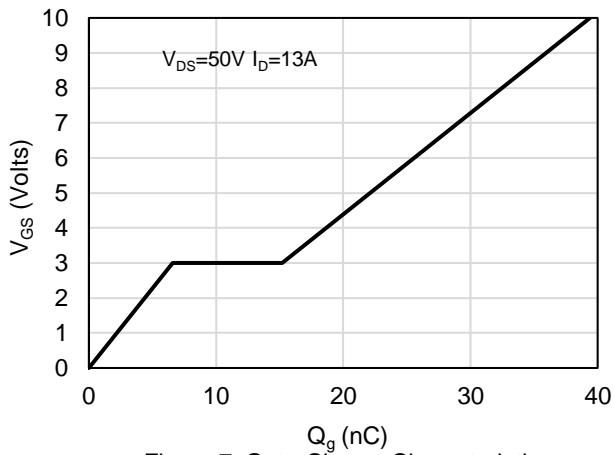


Figure 7: Gate-Charge Characteristics

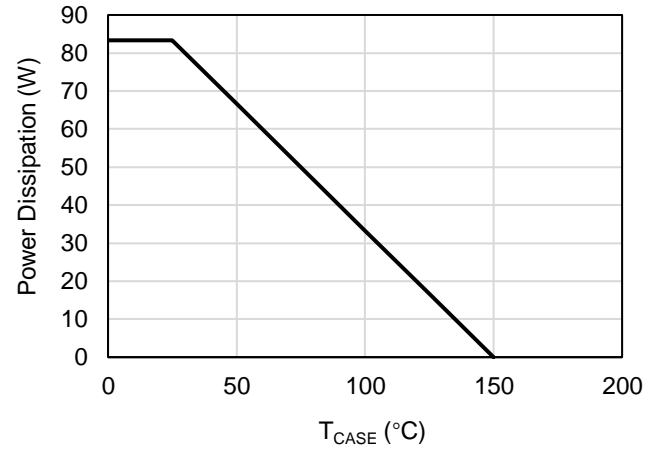


Figure 8: Power De-rating

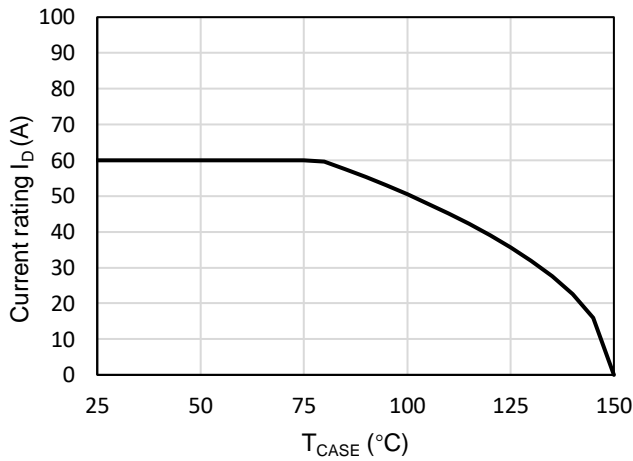


Figure 9: Current De-rating

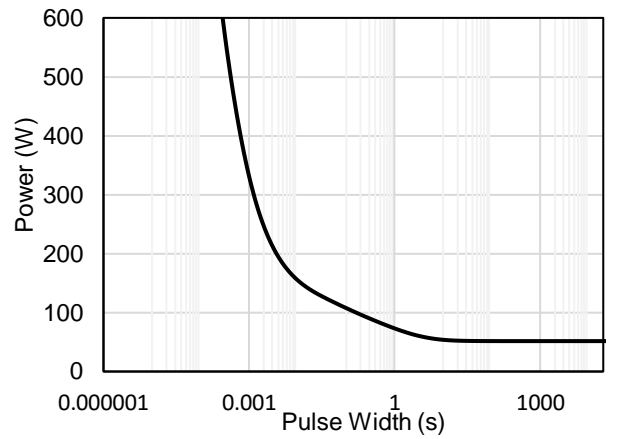


Figure 10: Single Pulse Power Rating Junction-to-Case

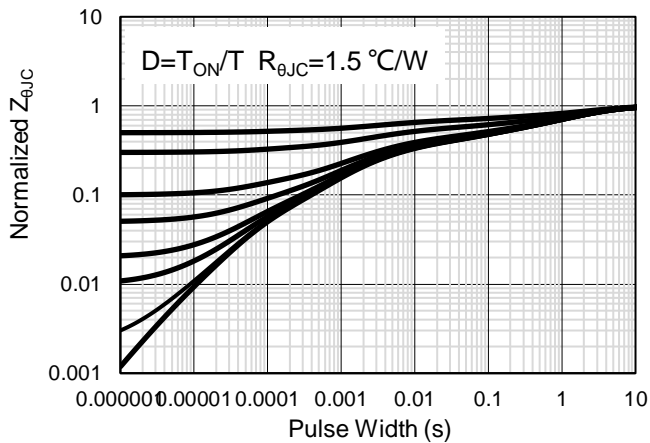


Figure 11: Normalized Maximum Transient Thermal Impedance

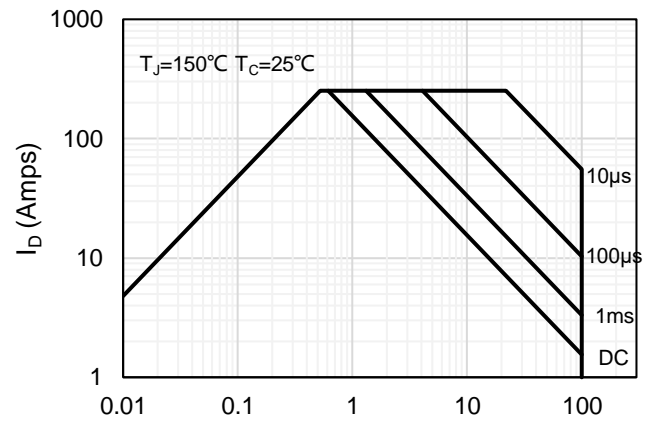
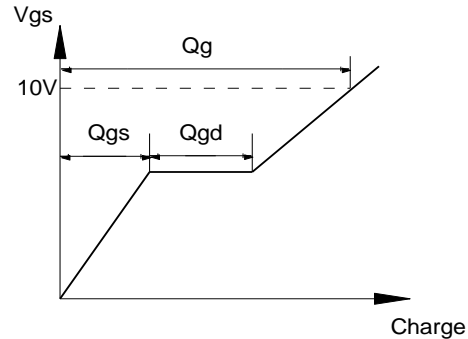
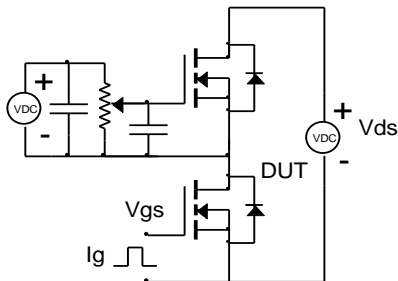


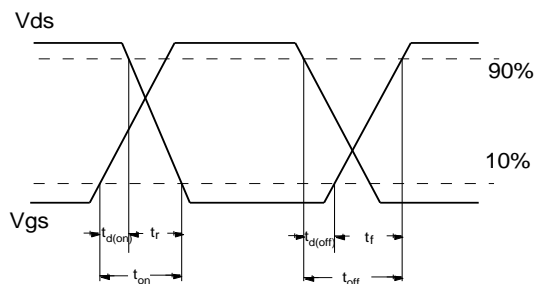
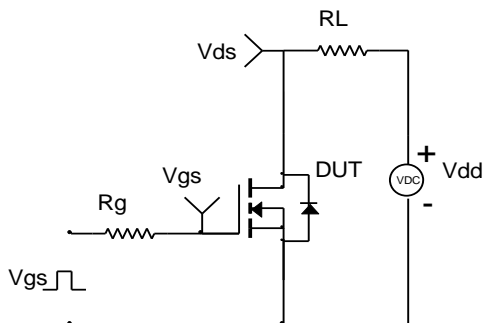
Figure 12: Maximum Forward Biased Safe Operating Area

Test Circuit and Waveform

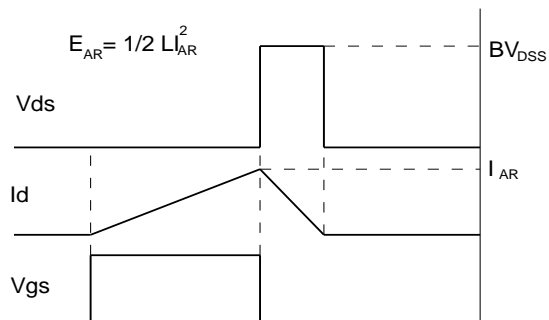
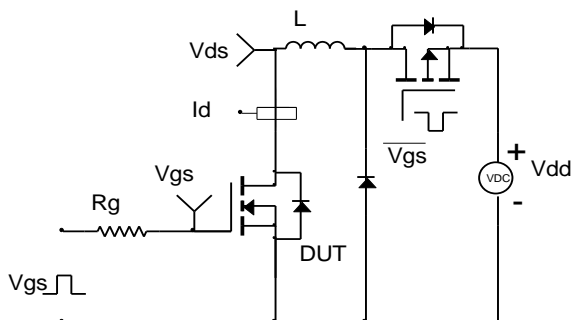
Gate Charge Test Circuit & Waveform



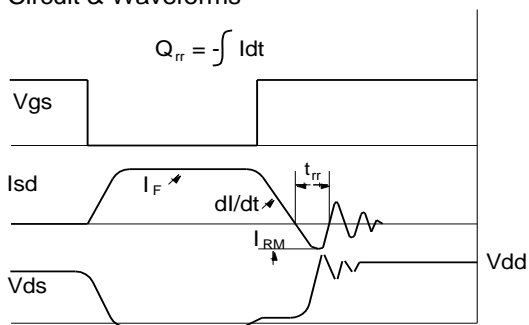
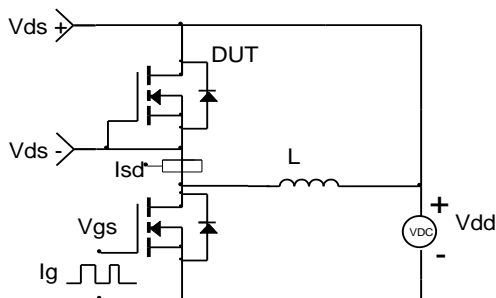
Resistive Switching Test Circuit & Waveforms



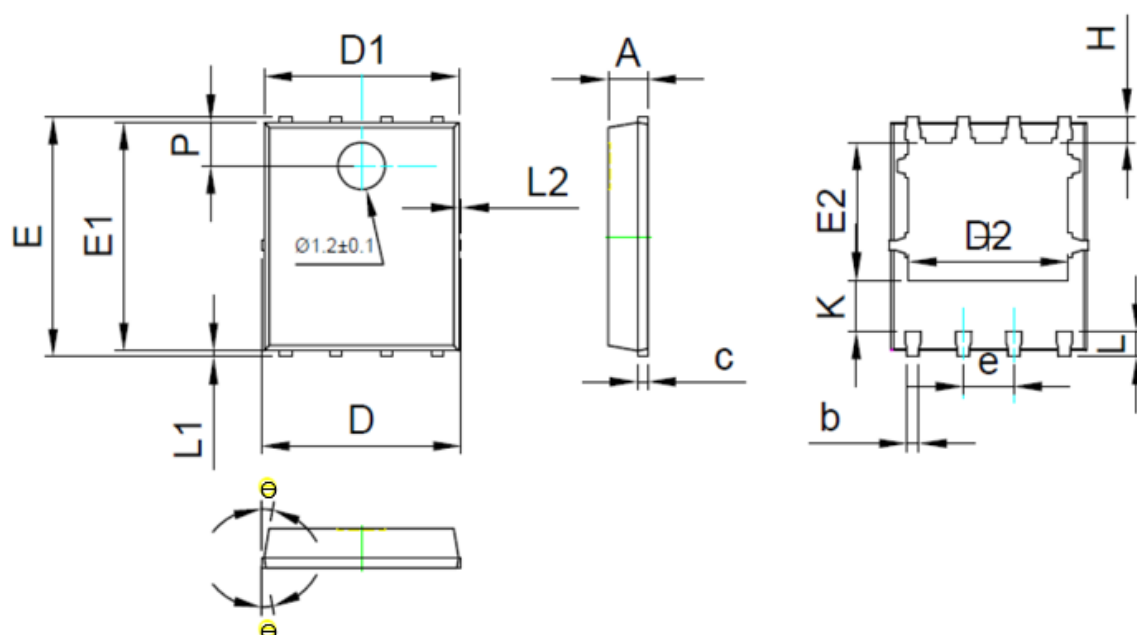
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



Package Outlines



COMMON DIMENSIONS
(UNITS OF MEASURE = MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.35	0.40	0.45
c	0.21	0.25	0.34
D	-	-	5.1
D1	4.85	4.90	4.95
D2	3.96	4.01	4.06
e	1.27 BSC		
E	5.95	6.00	6.05
E1	5.70	5.75	5.80
E2	3.425	3.475	3.525
H	0.60	0.65	0.70
K	1.29	-	-
L	0.60	0.65	0.70
L1	0.05	0.15	0.25
L2	-	-	0.12
Θ	8°	10°	12°
P	1.05	1.10	1.15