

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	70mΩ@10V	7A
	85mΩ@4.5V	

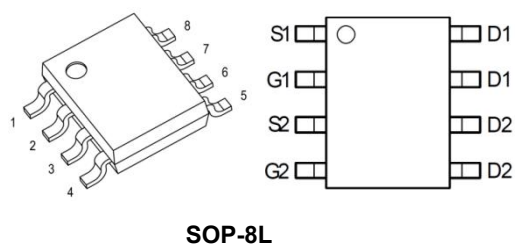
Feature

- N-Channel
- Enhancement mode
- Low on-resistance
- Fast Switching

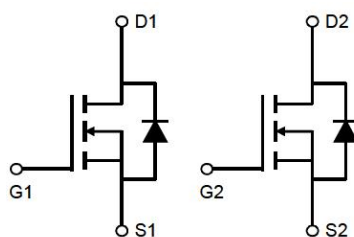
Application

- Synchronous Rectifier
- Primary Switch For Bridge Topology

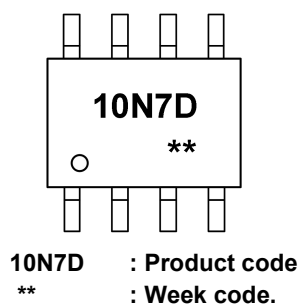
Package



Circuit diagram



Marking



**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, VGS @ 10V ¹	I_D	7	A
Pulsed Drain Current ²	I_{DM}	28	A
Total Power Dissipation	P_D	2.5	W
Thermal Resistance Junction-ambient ¹	$R_{\theta JA}$	50	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

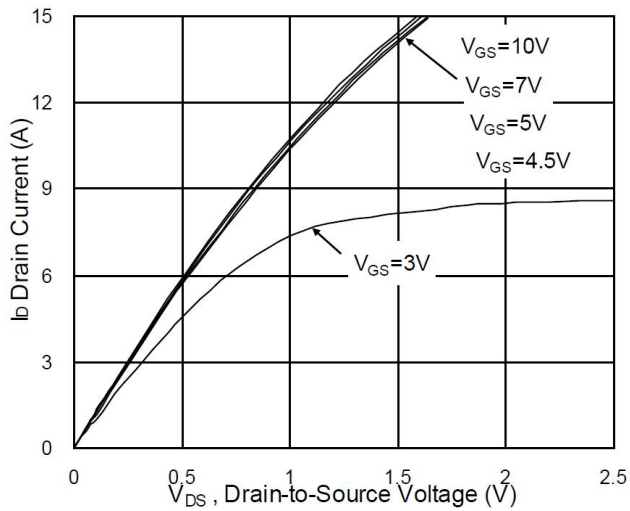
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	100			V
Drain-Source Leakage Current	IDSS	VDS=80V , VGS=0V , TJ=25℃			1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V			± 100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	1.2	1.8	2.5	V
Static Drain-Source On-Resistance ²	R _{DS(ON)}	VGS=10V , ID=2A		70	100	mΩ
		VGS=4.5V , ID=1A		85	110	
Dynamic Characteristics						
Total Gate Charge (10V)	Q _g	VDS=80V , VGS=10V , ID=2A		26.2	36.7	nC
Gate-Source Charge	Q _{gs}			3.8	5.32	
Gate-Drain Charge	Q _{gd}			4.8	6.7	
Input Capacitance	C _{iss}	VDS=15V , VGS=0V , f=1MHz		1535	2149	pF
Output Capacitance	C _{oss}			60	84	
Reverse Transfer Capacitance	C _{rss}			37	52	
Switching Characteristics						
Turn-On Delay Time	T _{d(on)}	VDD=50V , VGS=10V , RG=3.3Ω ID=2A		4.2	8.4	ns
Rise Time	T _r			7.6	14	
Turn-Off Delay Time	T _{d(off)}			41	82	
Fall Time	T _f			14	28	
Drain-Source Diode Characteristics						
Continuous Source Current ^{1,4}	I _S	VG=VD=0V , Force Current			2.5	A
Pulsed Source Current ^{2,4}	I _{SM}				10	A
Diode Forward Voltage ²	V _{SD}	VGS=0V , IS=1A , TJ=25℃			1.2	V
Reverse Recovery Time	t _{rr}	IF=2A , dI/dt=100A/μs , TJ=25℃		35		nS
Reverse Recovery Charge	Q _{rr}			17		nC

Note:

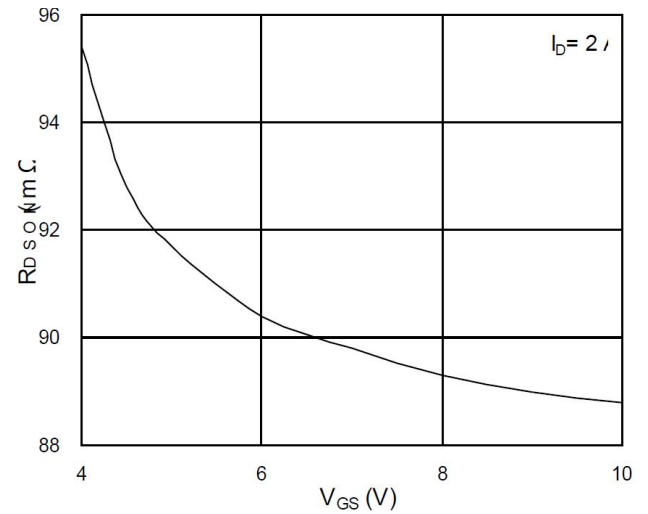
1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The power dissipation is limited by 150°C junction temperature
4. The data is theoretically the same as ID and IDM, in real applications, should be limited by total power dissipation.



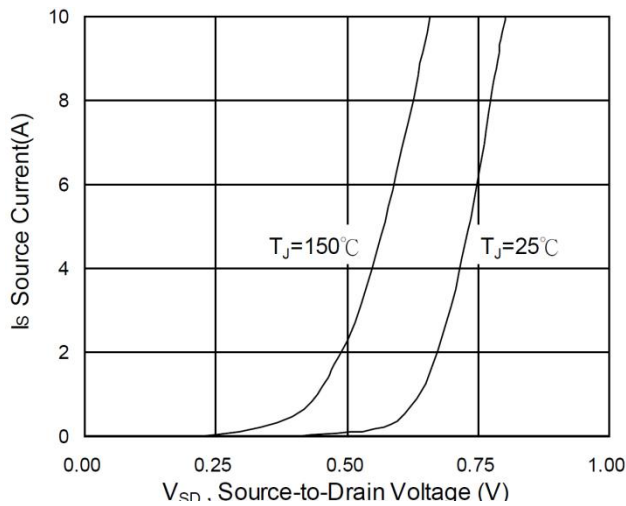
Typical Characteristics



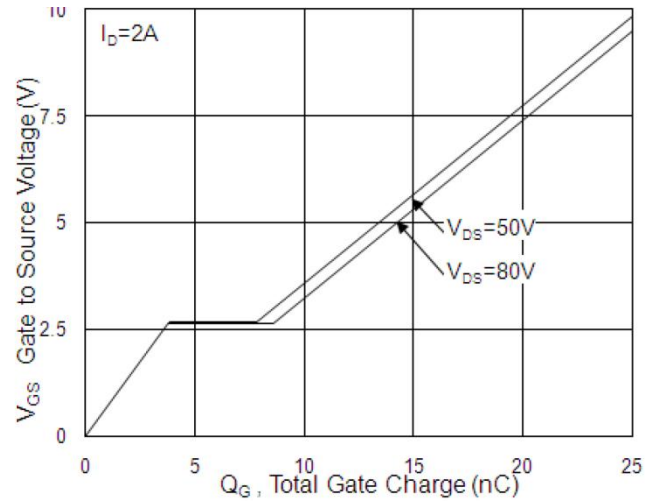
Typical Output Characteristics



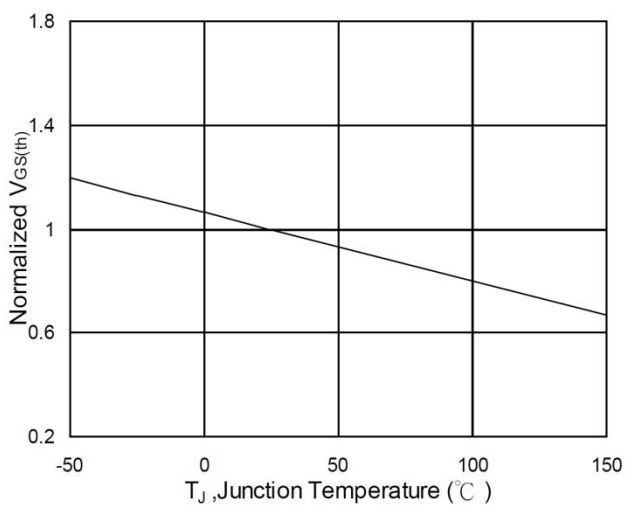
On-Resistance vs. Gate-Source



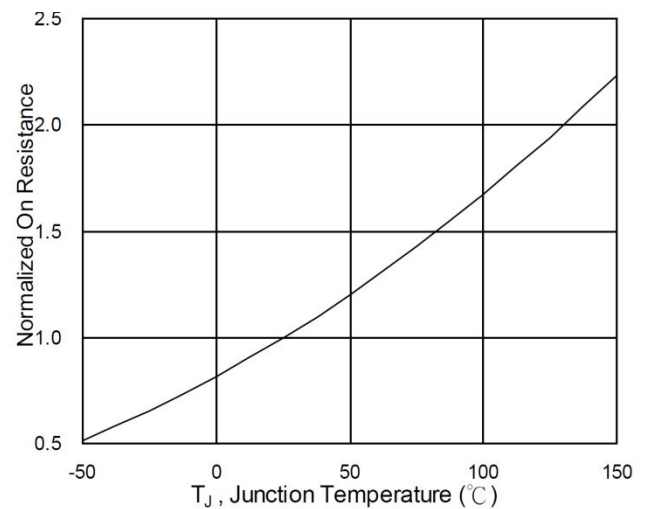
Forward Characteristics Of Reverse



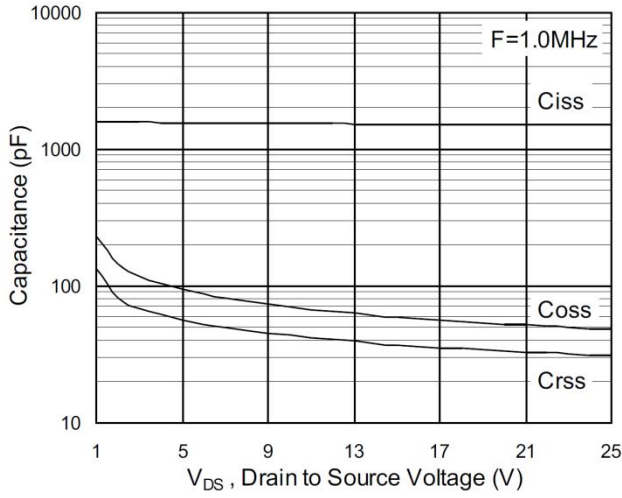
Gate-Charge Characteristics



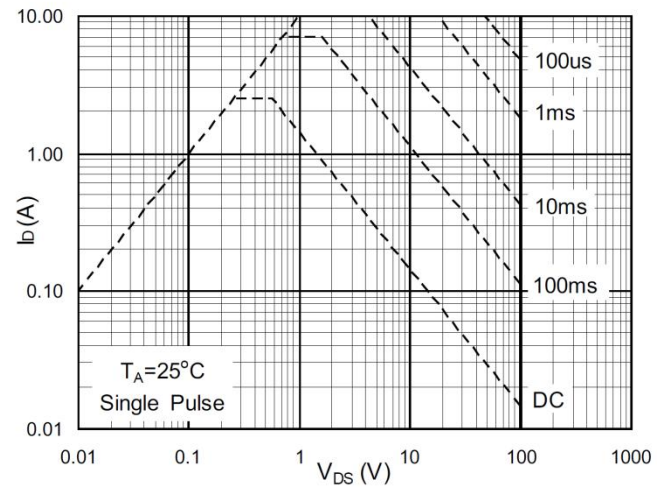
Normalized $V_{GS(th)}$ vs. T_J



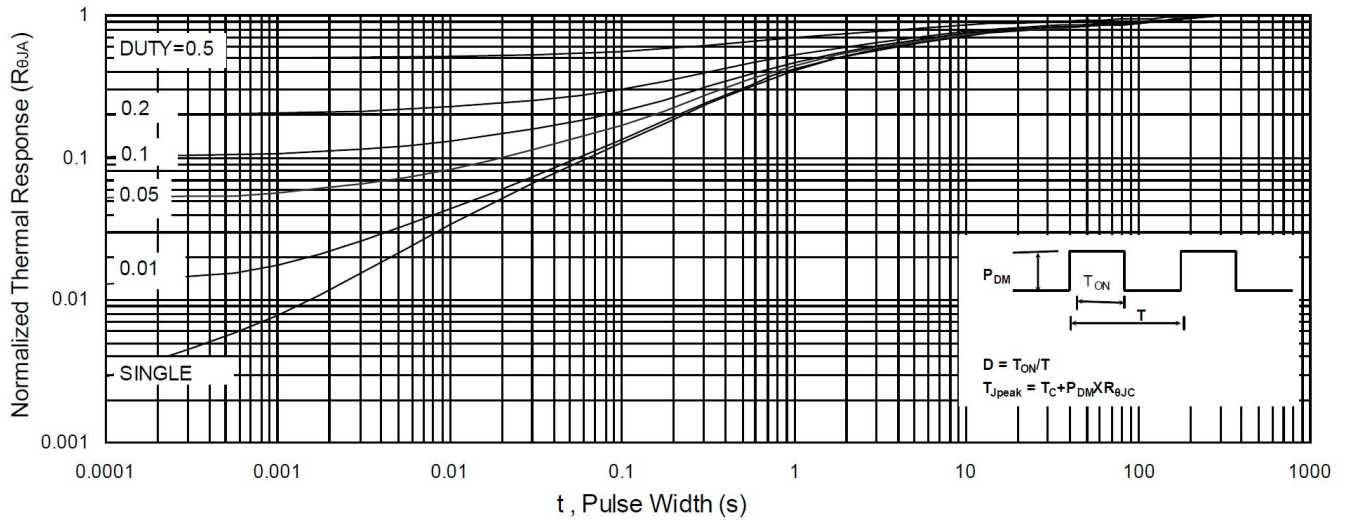
Normalized $R_{DS(on)}$ vs. T_J



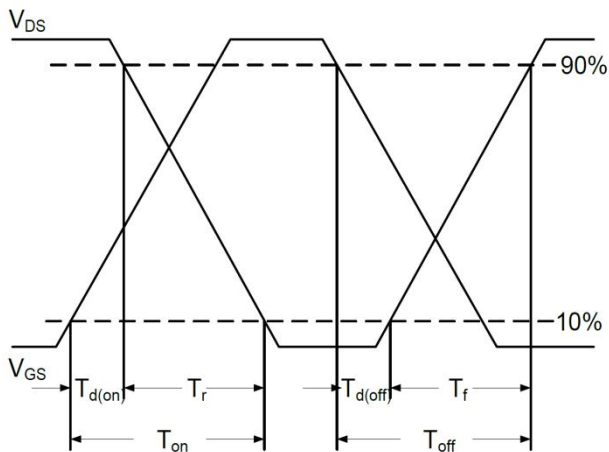
Capacitance



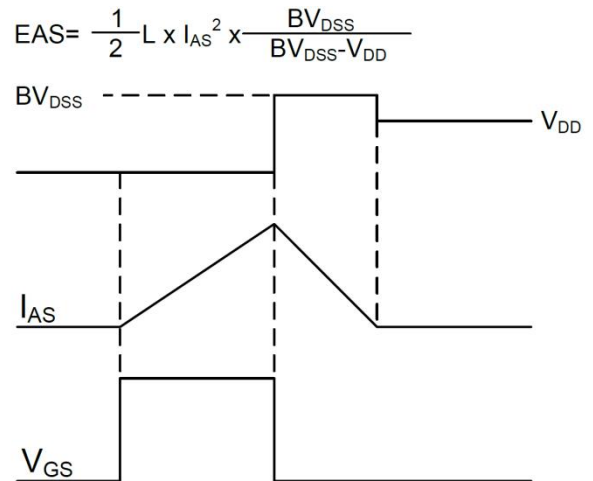
Safe Operating Area



Normalized Maximum Transient Thermal Impedance

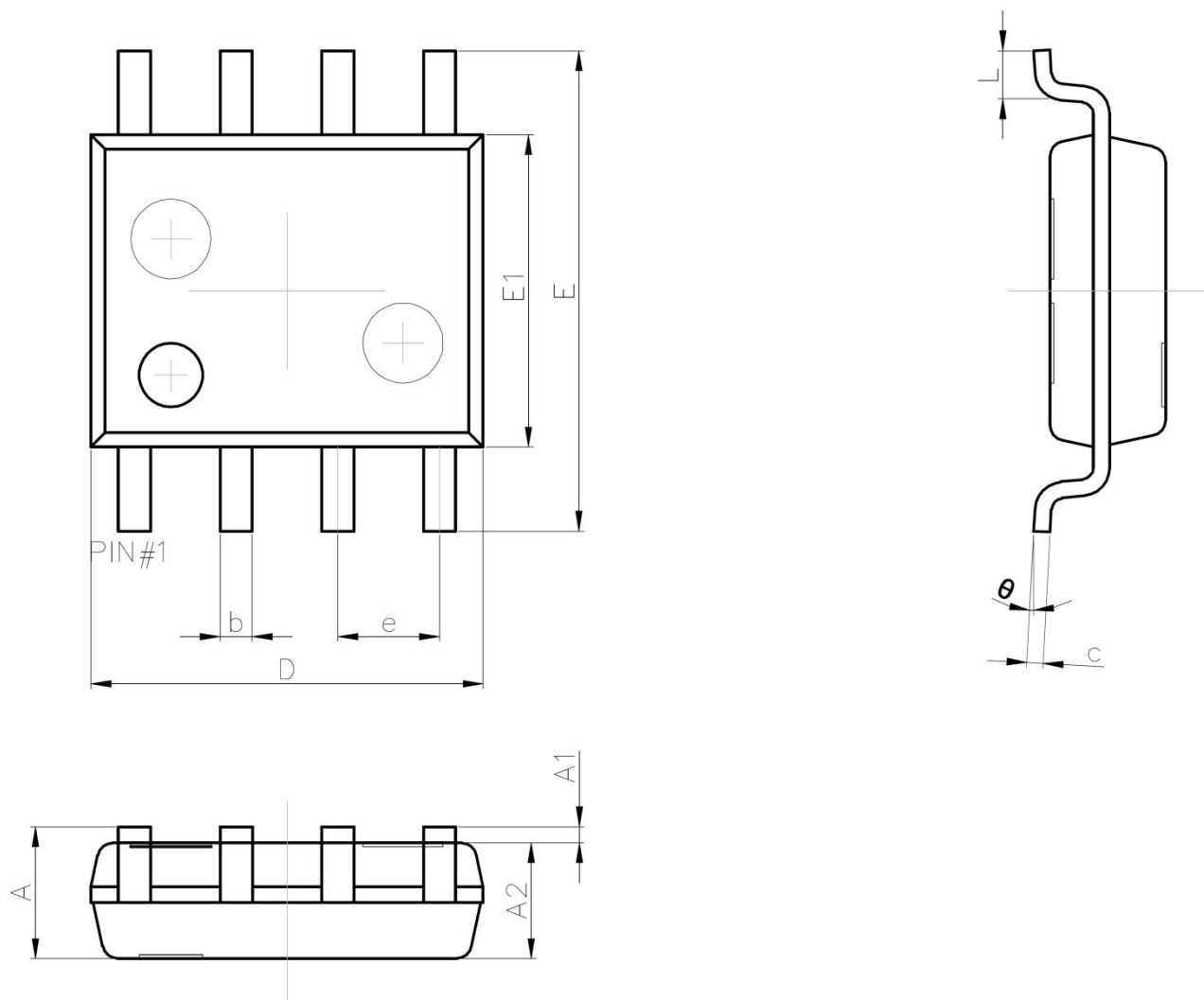


Switching Time Waveform



Unclamped Inductive Switching Waveform

SOP-8 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°