

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	80mΩ@10V	3.5A
	90mΩ@4.5V	

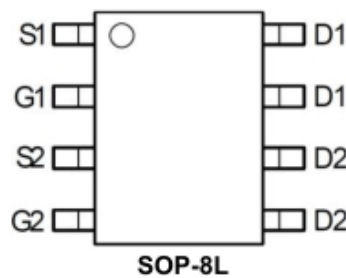
Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS
- Excellent package for good heat dissipation
- Special process technology for high ESD capability

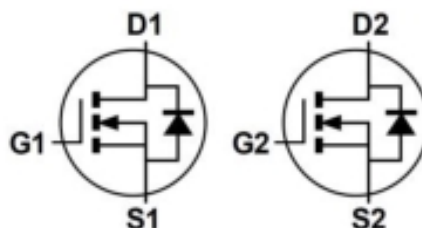
Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

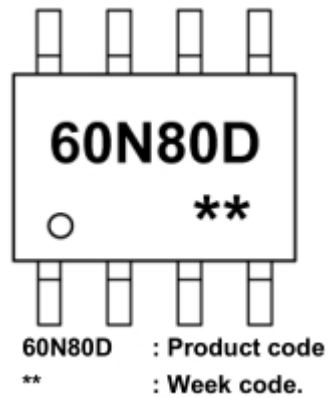
Package



Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	3.5	A
Pulsed Drain Current ¹⁾	I _{DM}	14	A
Maximum Power Dissipation	P _D	2	W
Thermal Resistance from Junction to Ambient ²⁾	R _{θJA}	62.5	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 To 150	°C

Electrical characteristics

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

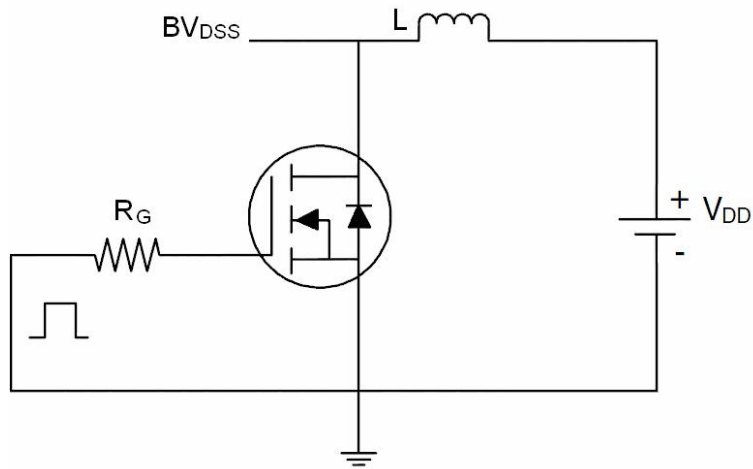
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} = 0V			1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	uA
Gate Threshold Voltage ³⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.6	2.5	V
Drain-Source On-State Resistance ³⁾	R _{DS(on)}	V _{GS} =10V, I _D =3.5A		80	100	mΩ
		V _{GS} =4.5V, I _D =2.5A		90	120	
Forward Transconductance	g _{FS}	V _{DS} =5V,I _D =4.5A	11			S
Dynamic Characteristics ⁽⁴⁾						
Input capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz		420		pF
Output capacitance	C _{oss}			48		
Reverse transfer capacitance	C _{rss}			20		
Switching Characteristics ⁽⁴⁾						
Turn-on Delay Time	T _{d(on)}	V _{DD} =30V,I _D =1A, V _{GS} =10V,R _{Gen} =6W		7	14	nS
Turn-on Rise Time	T _r			4.3	8.6	
Turn-Off Delay Time	T _{d(off)}			19	34	
Turn-Off Fall Time	t _f			3	6	
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =5V, I _D =3.5A		8	13	pF
Gate-Source Charge	Q _{gs}			4		
Gate-Drain Charge	Q _{gd}			2.5		
Drain-Source Diode Characteristics						
Diode Forward Voltage ³⁾	V _{SD}	V _{GS} =0V ,I _S =2A			1.2	V

Notes:

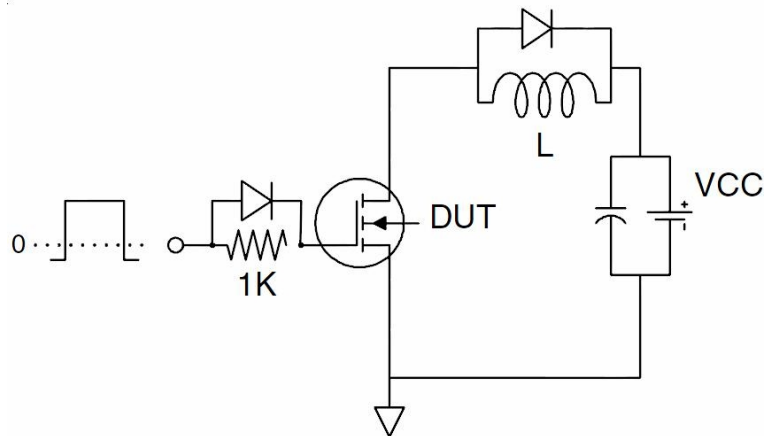
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Test Circuits

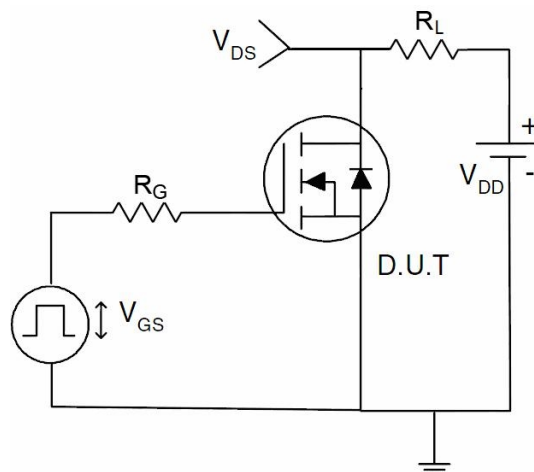
- EAS Test Circuits



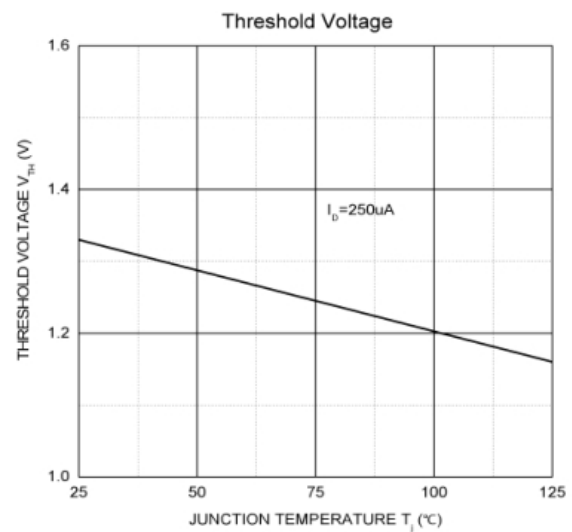
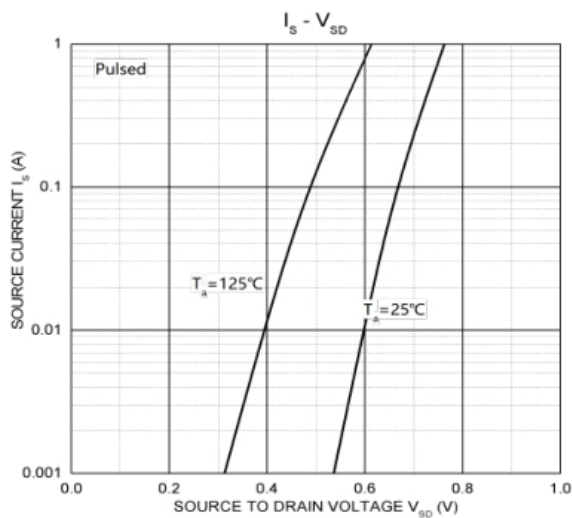
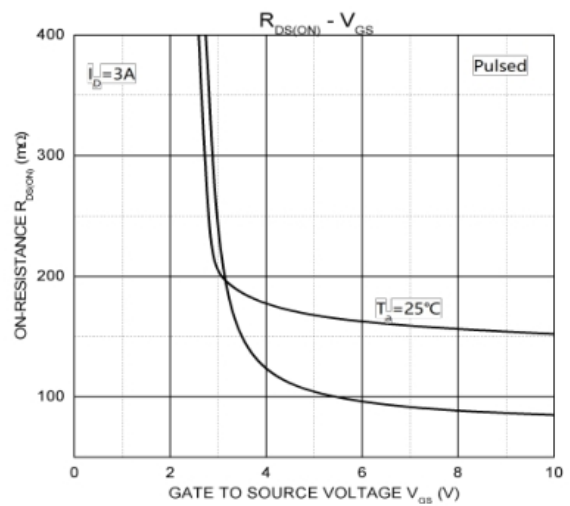
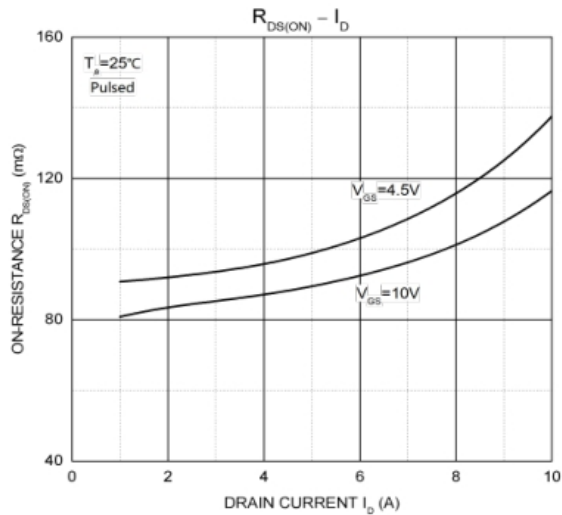
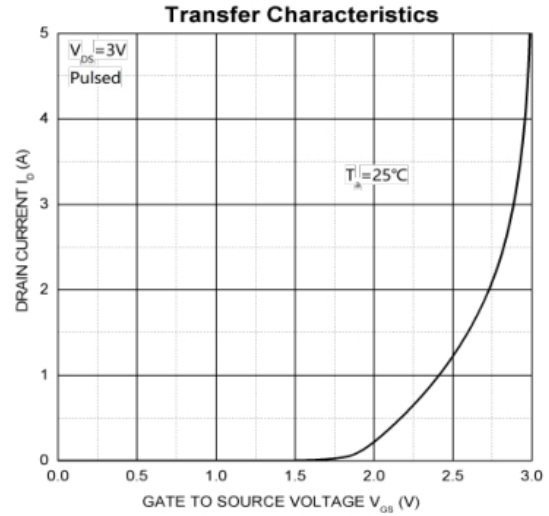
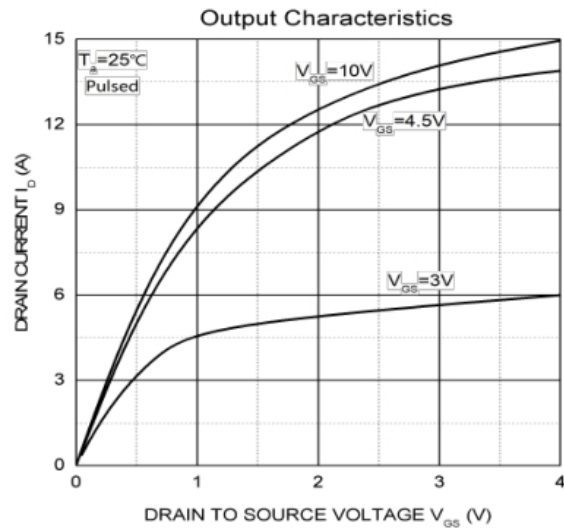
- Gate Charge Test Circuit



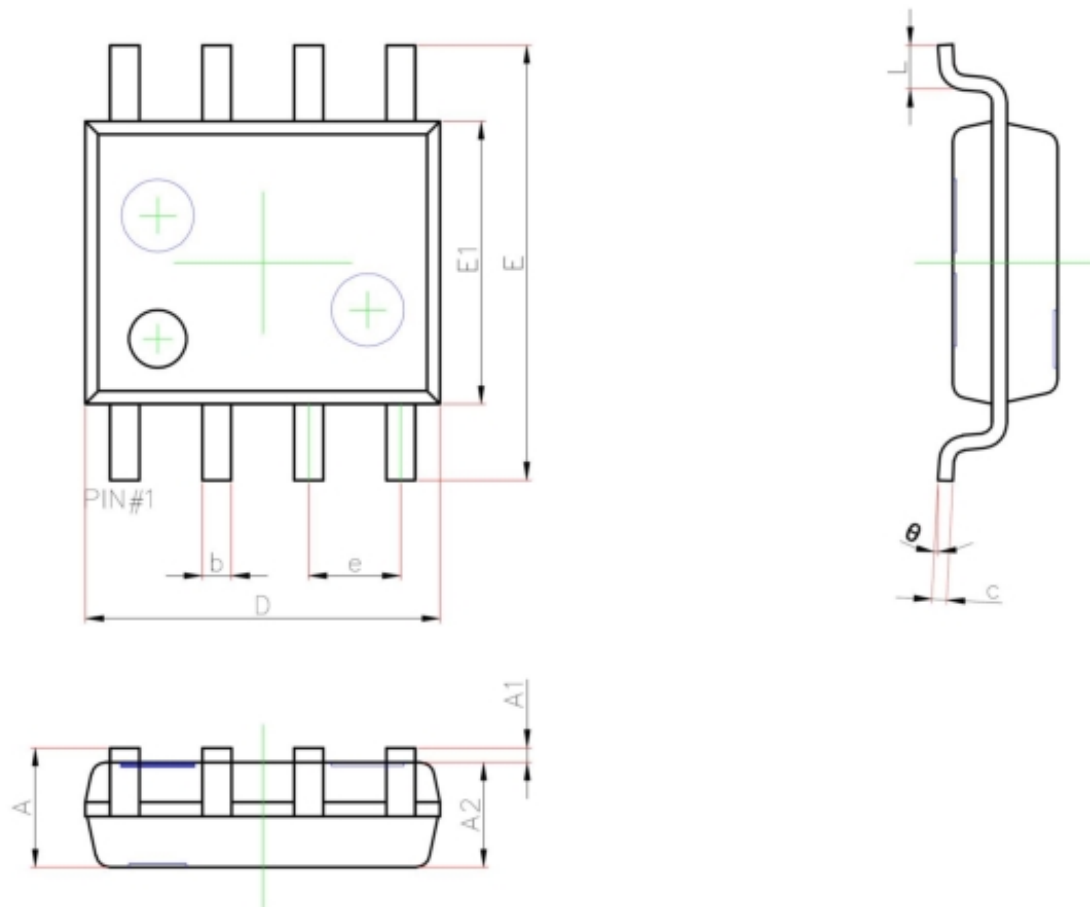
- Switch Time Test Circuit



Typical Characteristics



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°