

Features

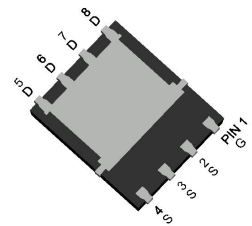
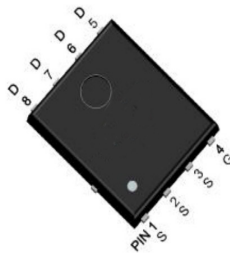
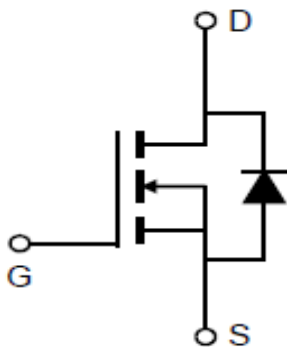
- Low on resistance
- Low reverse transfer capacitances
- 100% single pulse avalanche energy test
- 100% ΔV_{DS} test
- Pb-Free plating / Halogen-Free / RoHS compliant

Applications

- Power switching applications
- DC-DC converters
- Full bridge control

Key Parameters

V_{DS}	100V
$R_{DS(on)typ.}$	4.6mΩ
I_D	95A
V_{TH}	3V
$C_{iss@10V}$	4015pF
Q_{gd}	11.2nC



Marking & Packing Information

Part #	Package	Marking	Tube/Reel	Qty(pcs)
SFE055N100C3	DFN5*6-8	055N100C3	Tape & Reel	3000/box

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	100	V
Gate-Source voltage	V_{GS}	±20	V
Continuous drain current $T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	I_D	95 60	A
Pulsed drain current ($T_C = 25^\circ\text{C}$, t_p limited by T_{jmax})	$I_{D \text{ pulse}}$	380	A
Avalanche energy, single pulse ($L=0.5\text{mH}$, $R_g=25\Omega$) ^[1]	E_{AS}	441	mJ
Power dissipation $T_C = 25^\circ\text{C}$	P_{tot}	89	W
Operating junction and storage temperature	T_j, T_{stg}	-55...+150	°C

Notes: 1. EAS was tested at $T_j = 25^\circ\text{C}$, $L = 0.5\text{mH}$, $I_D=29\text{A}$.

Thermal Resistance

Parameter	Symbol	Max	Unit
Thermal resistance, junction – case.	R_{thJC}	1.4	°C/W

Electrical Characteristic (at $T_j = 25^\circ\text{C}$, unless otherwise specified)

Static Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Drain-source breakdown voltage	BV_{DSS}	100	-	-	V	$V_{GS}=0\text{V}$, $I_D=250\mu\text{A}$
Gate threshold voltage	$V_{GS(th)}$	2.0	3.0	4.0	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
Zero gate voltage drain current	I_{DSS}	-	-	1	μA	$V_{DS}=100\text{V}$, $V_{GS}=0\text{V}$ $T_j=25^\circ\text{C}$
		-	-	100		$T_j=125^\circ\text{C}$
Gate-source leakage current	I_{GSS}	-	-	100	nA	$V_{GS}=20\text{V}$, $V_{DS}=0\text{V}$
Drain-source on-state resistance	$R_{DS(on)}$	-	4.6	5.5	mΩ	$V_{GS}=10\text{V}$, $I_D=60\text{A}$
Transconductance	g_{fs}	-	102	-	S	$V_{DS}=5\text{V}$, $I_D=50\text{A}$

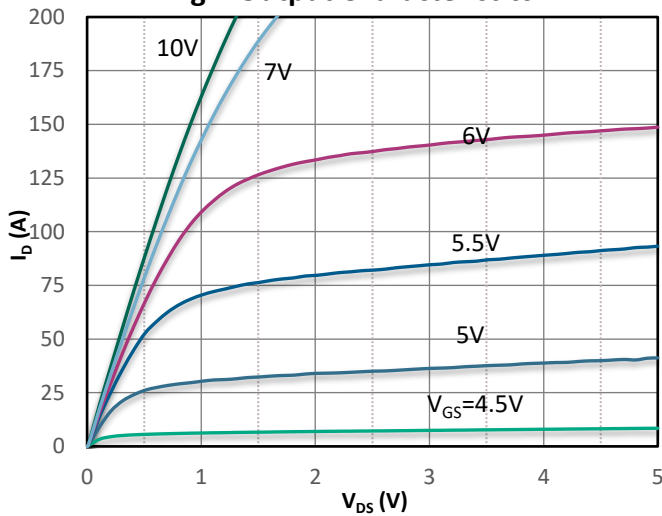
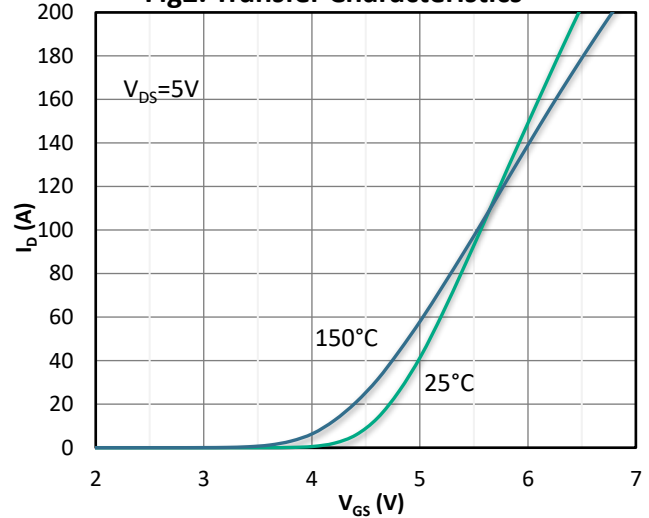
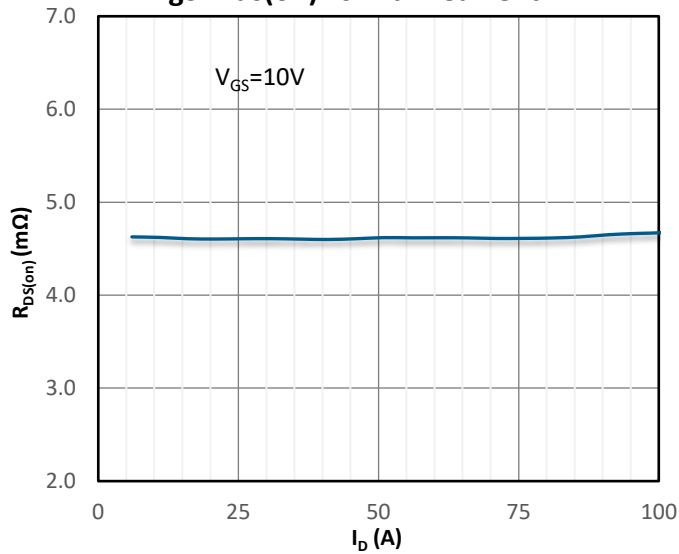
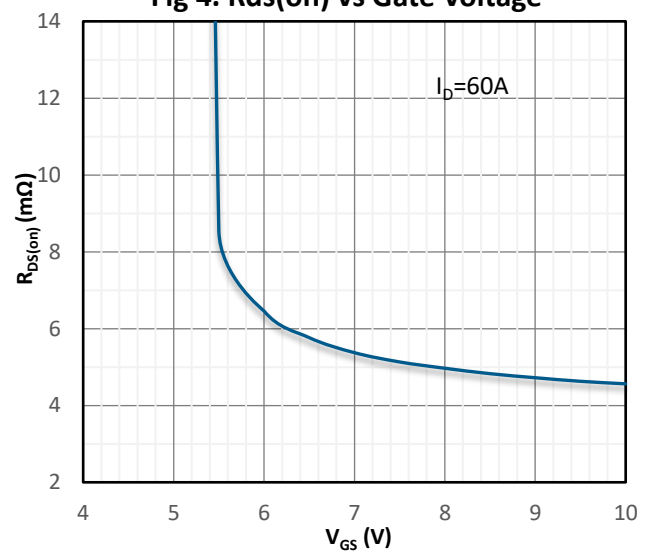
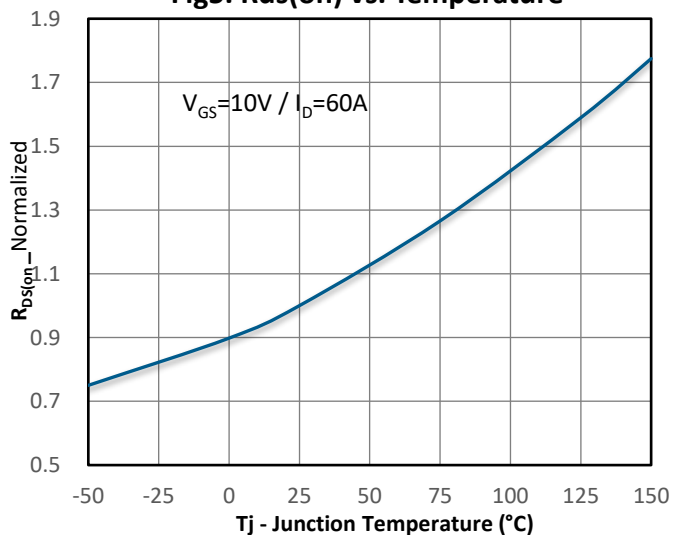
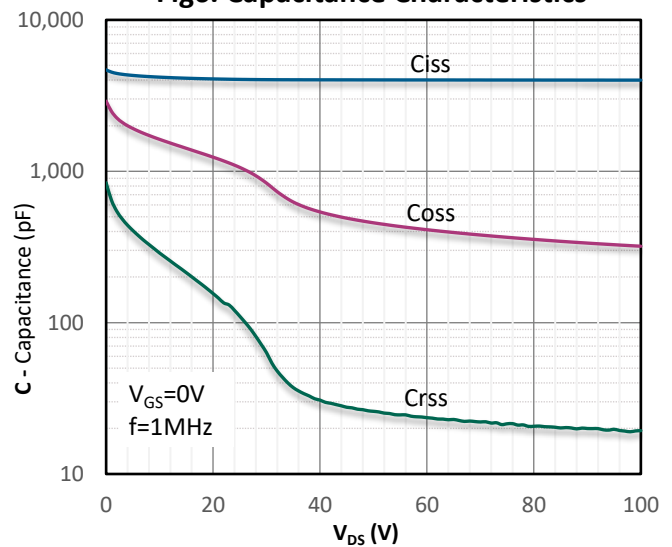
Dynamic Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Input Capacitance	C_{iss}	-	4015	-	pF	$V_{GS}=0V$, $V_{DS}=50V$, $f=1MHz$
Output Capacitance	C_{oss}	-	457	-		
Reverse Transfer Capacitance	C_{rss}	-	26	-		
Gate Total Charge	Q_G	-	58	-	nC	$V_{GS}=10V$, $V_{DS}=50V$, $I_D=60A$
Gate-Source charge	Q_{gs}	-	22	-		
Gate-Drain charge	Q_{gd}	-	11.2	-		
Gate plateau voltage	$V_{plateau}$	-	5.3	-	V	
Turn-on delay time	$t_{d(on)}$	-	16	-	ns	$V_{GS}=10V$, $V_{DD}=50V$, $I_D=60A$, $R_{G_ext}=3\Omega$
Rise time	t_r	-	35	-		
Turn-off delay time	$t_{d(off)}$	-	38	-		
Fall time	t_f	-	16	-		

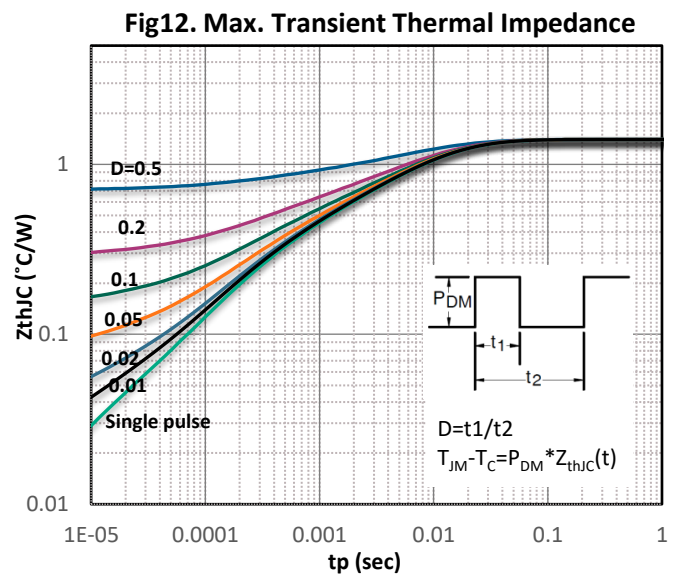
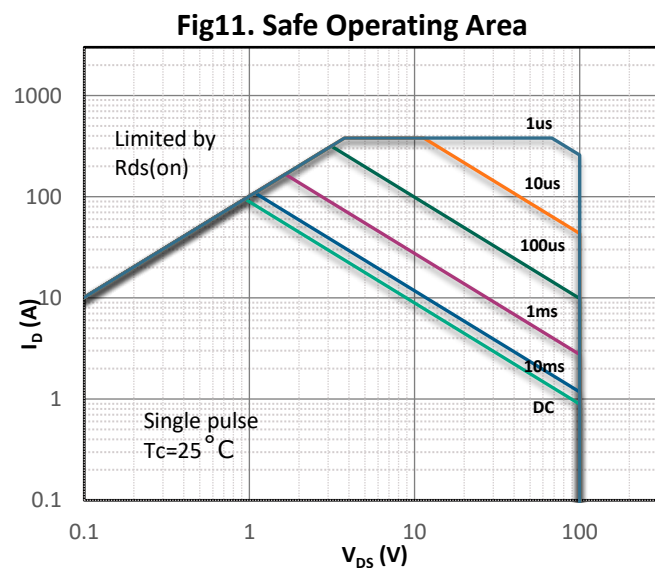
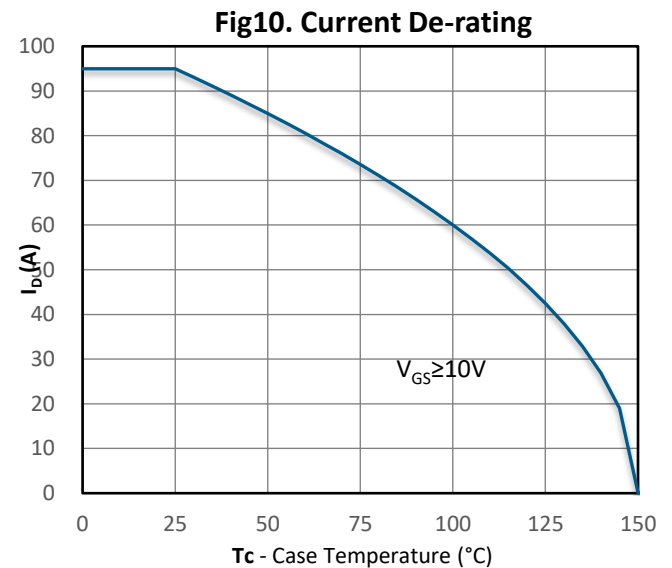
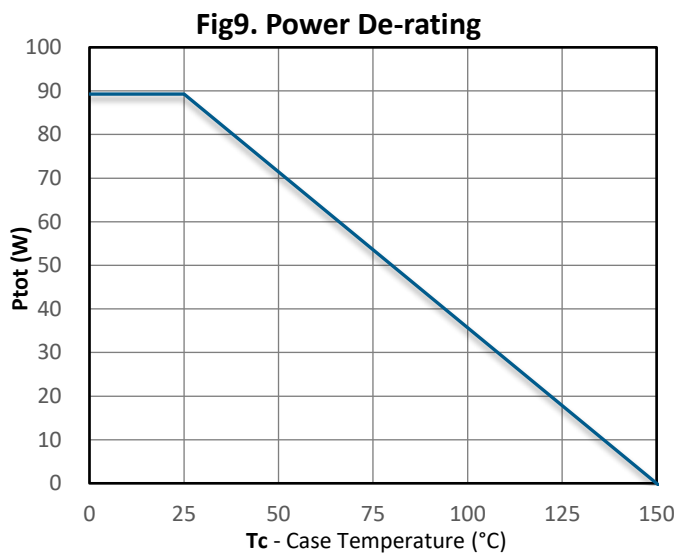
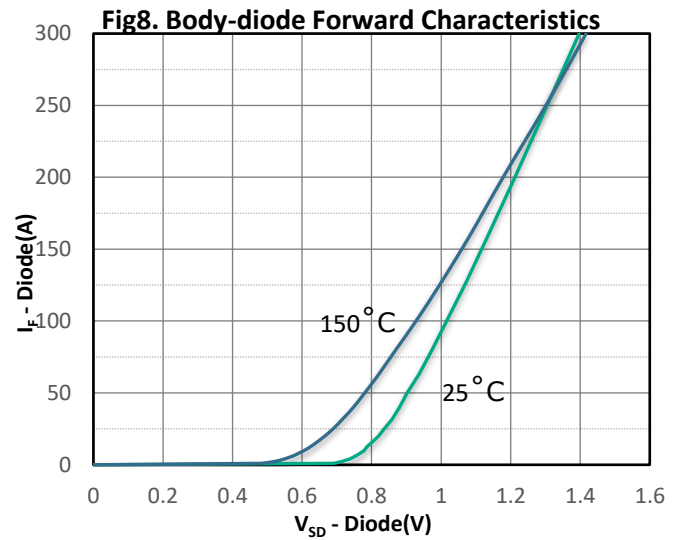
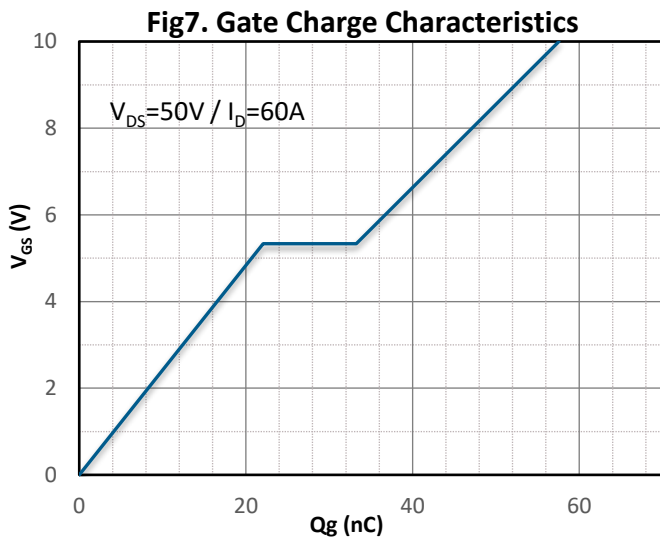
Body Diode Characteristic

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Diode Max Current	I_S		-	95	A	-
Diode Forward Voltage	V_{SD}	-	-	1.2	V	$V_{GS}=0V$, $I_{SD}=60A$
Diode Reverse Recovery Time	t_{rr}	-	59	-	ns	$I_F=60A$, $dI/dt=100A/\mu s$
Diode Reverse Recovery Charge	Q_{rr}	-	89	-	nC	

Typical Characteristics Diagram

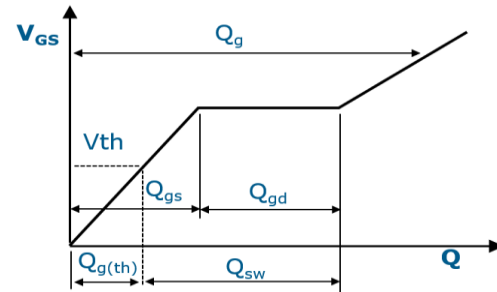
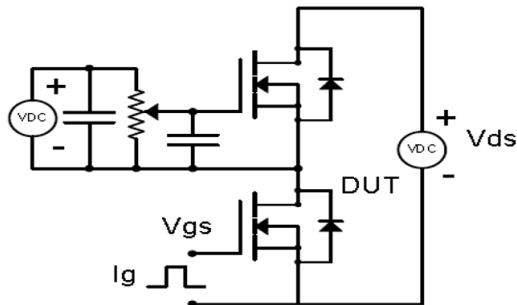
Fig1. Output Characteristics

Fig2. Transfer Characteristics

Fig3. Rds(on) vs Drain Current

Fig 4. Rds(on) vs Gate Voltage

Fig5. Rds(on) vs. Temperature

Fig6. Capacitance Characteristics


Typical Characteristics Diagram

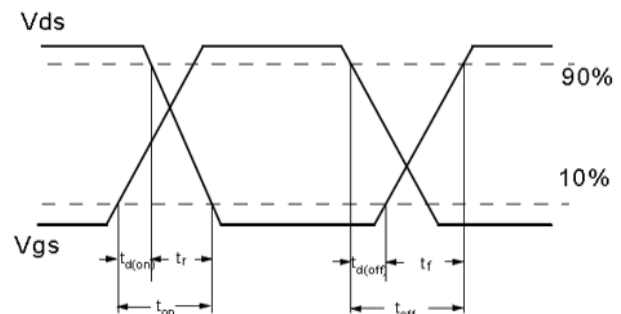
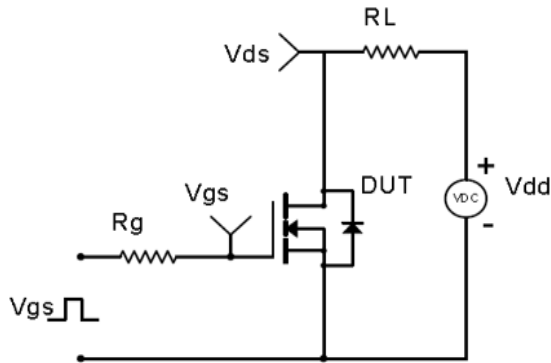


Test Circuit & Waveform

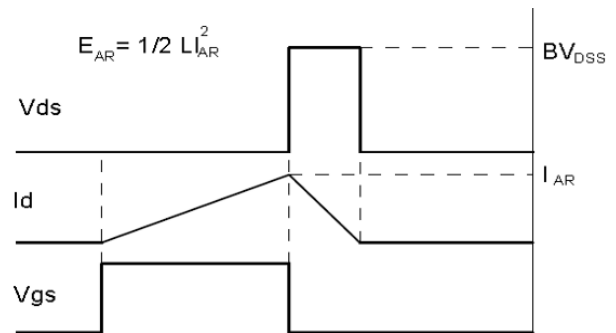
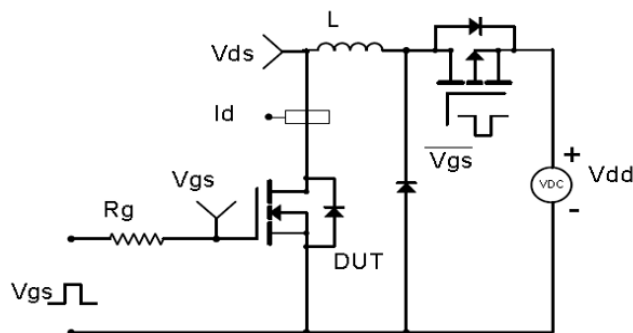
Gate Charge Test Circuit & Waveform



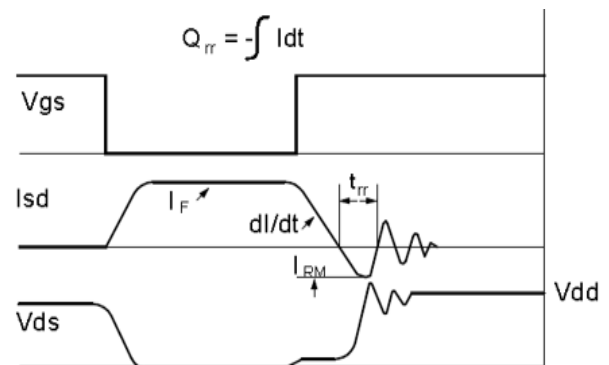
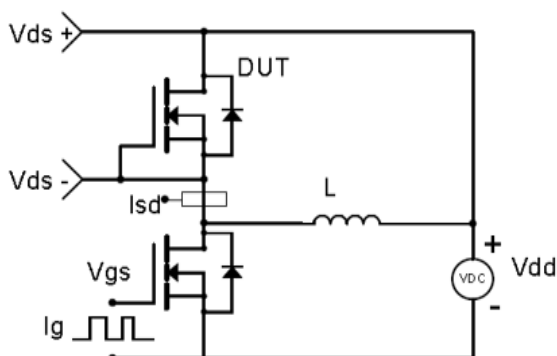
MOSFET Switching Test Circuit & Waveform

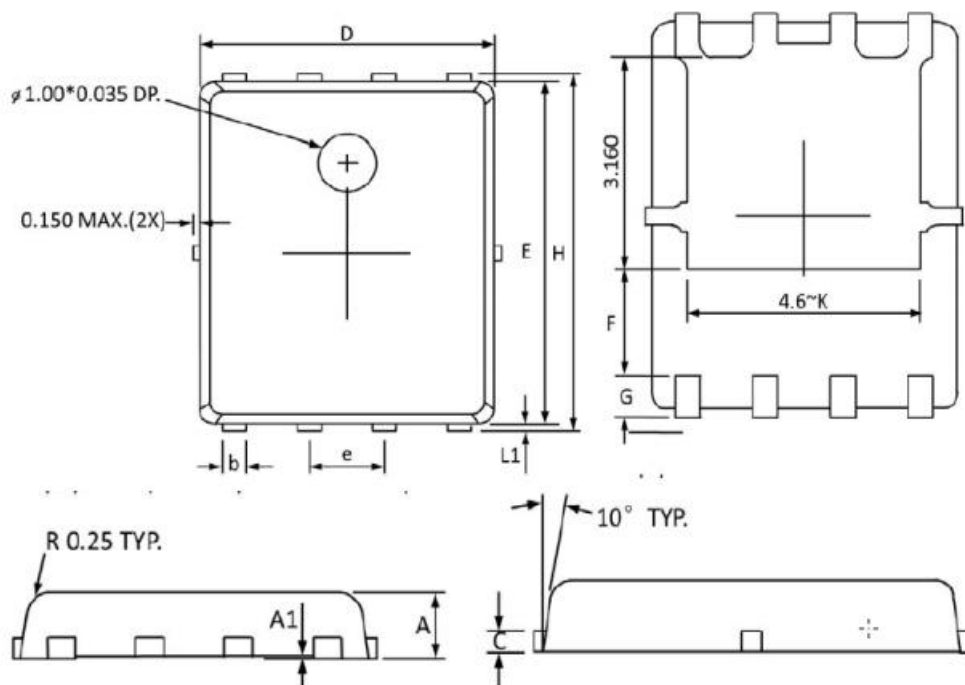


E_{AS} Test Circuit & Waveform



Diode Recovery Test Circuit & Waveform



Package Outline : DFN5*6-8
PPAK5x6 PACKAGE INFORMATION


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.800	1.000	0.032	0.039
A1	0.000	0.005	0.000	0.000
b	0.350	0.490	0.014	0.019
C	0.254 Ref		0.254 Ref	
D	4.900	5.100	0.193	0.200
E	5.700	5.900	0.225	0.232
e	1.27 BSC		1.27 BSC	
F	1.600 Ref		1.600 Ref	
G	0.600 Ref		0.600 Ref	
H	5.950	6.200	0.235	0.244
L1	0.100	0.180	0.004	0.007
K	3.200 Ref		3.200 Ref	