

N-Channel Enhancement MOSFET

Features

- Split Gate Trench MOSFET technology
- High density cell design for low RDS(ON)
- Excellent package for heat dissipation

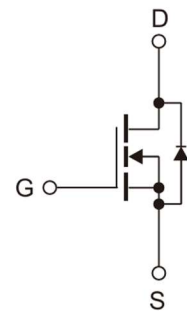
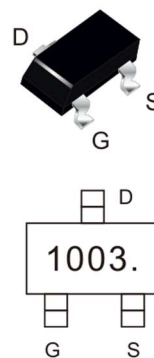
Product Summary			
V _{DS}	R _{DS(on)} (mΩ) Typ	I _D (A)	Q _g (Typ)
100V	110 @ 10V 3A	3	4.3nc

Application

- Load Switch for Portable Devices
- DC/DC Converter
- Power management functions

Marking information

SOT-23



N-channel MOSFET

Absolute Maximum Ratings (at T_c = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous drain current (T _A =25 °C)	I _D	3	A
Continuous drain current (T _A =70 °C)	I _D	2.4	A
Pulsed Drain Current ¹⁾	I _{DM}	12	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	8	mJ
Power Dissipation	P _D	1.2	W
Operating Junction	T _J	-55~150	°C
Storage Temperature Range	T _{stg}	-55~150	°C

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	R _{θJA}	104	°C/W

Note:

1. Pulse Test: Pulse Width≤300us, Duty cycle ≤2%.
2. L=0.5mH, VDD=50V, R_G=25Ω, Starting T_J=25°C.

Characteristics at T_J = 25°C unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at V _{GS} =0V, I _D =250μA	BV _{DSS}	100			V
Drain-Source Leakage Current at V _{DS} =100V, V _{GS} =0V	I _{DSS}			1	μA
Gate Leakage Current at V _{GS} =±20V, V _{DS} =0V	I _{GSS}			±0.1	μA
Gate-Source Threshold Voltage at V _{DS} =V _{GS} , I _D =250μA	V _{GS(th)}	1.0		2.5	V
Drain-Source On-State Resistance at V _{GS} =10V, I _D =3A at V _{GS} =4.5V, I _D =2A	R _{DS(on)}		110 160	140 300	mΩ
DYNAMIC PARAMETERS					
Input Capacitance at V _{DS} =50V, V _{GS} =0V, f=100KHz	C _{iss}		206		pF
Output Capacitance at V _{DS} =50V, V _{GS} =0V, f=100KHz	C _{oss}		28.9		pF
Reverse Transfer Capacitance at V _{DS} =50V, V _{GS} =0V, f=100KHz	C _{rss}		1.4		pF
Gate charge total at V _{DS} =50V, V _{GS} =10V, I _D =3A	Q _g		4.3		nC
Gate to Source Charge at V _{DS} =50V, V _{GS} =10V, I _D =3A	Q _{gs}		1.5		nC
Gate to Drain Charge at V _{DS} =50V, V _{GS} =10V, I _D =3A	Q _{gd}		1.1		nC
Turn-On Delay Time at V _{DS} =50V, I _D =3A, R _G =2Ω, V _{GS} =10V	t _{d(on)}		14.7		nS
Turn-On Rise Time at V _{DS} =50V, I _D =3A, R _G =2Ω, V _{GS} =10V	t _r		3.5		nS
Turn-Off Delay Time at V _{DS} =50V, I _D =3A, R _G =2Ω, V _{GS} =10V	t _{d(off)}		20.9		nS
Turn-Off Fall Time at V _{DS} =50V, I _D =3A, R _G =2Ω, V _{GS} =10V	t _f		2.7		nS
Reverse Recovery Time I _F =3A, V _{GS} =0V, di/dt=100A/μs	t _{rr}		32.1		nS
Reverse Recovery Charge I _F =3A, V _{GS} =0V, di/dt=100A/μs	Q _{rr}		39.4		nC
Body-Diode PARAMETERS					
Drain-Source Diode Forward Voltage at I _S =3A, V _{GS} =0V	V _{SD}			1.3	V
Maximum Body-Diode Continuous Current	I _S			3	A

Electrical Characteristics Curves

Figure 1. Output Characteristics

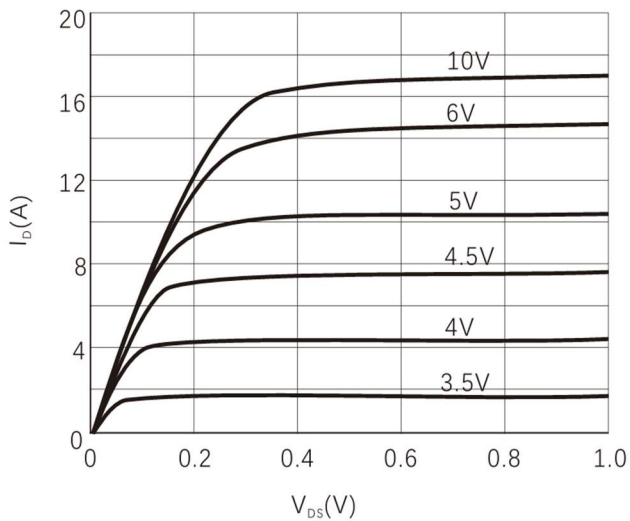


Figure 2. Normalized $R_{DS(ON)}$ vs Temperature

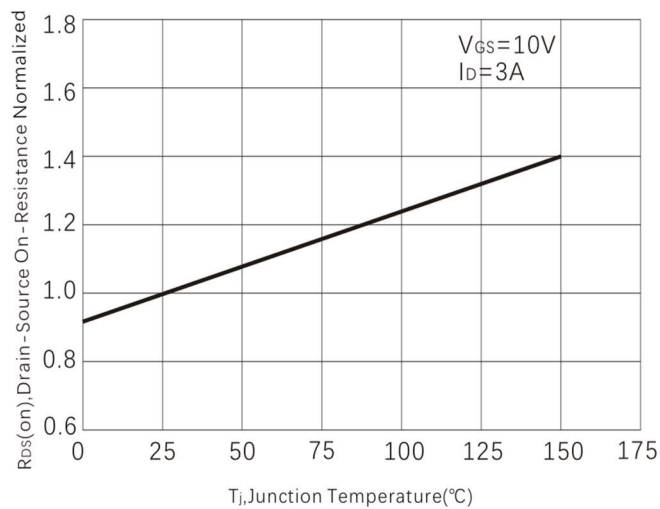


Figure 3. On-Resistance vs. Drain Current

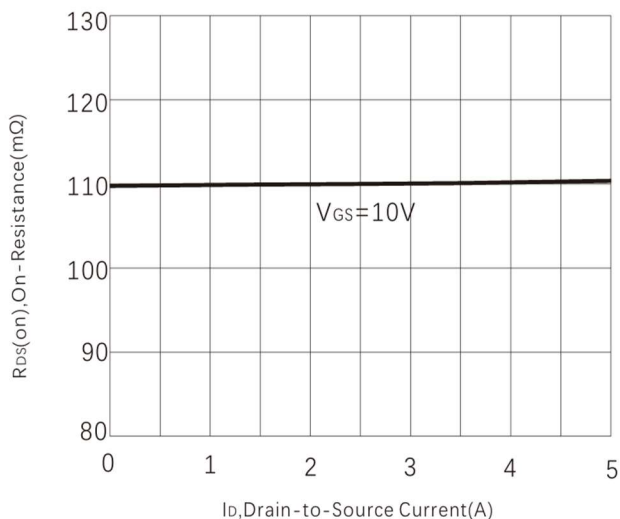


Figure 4. Capacitance

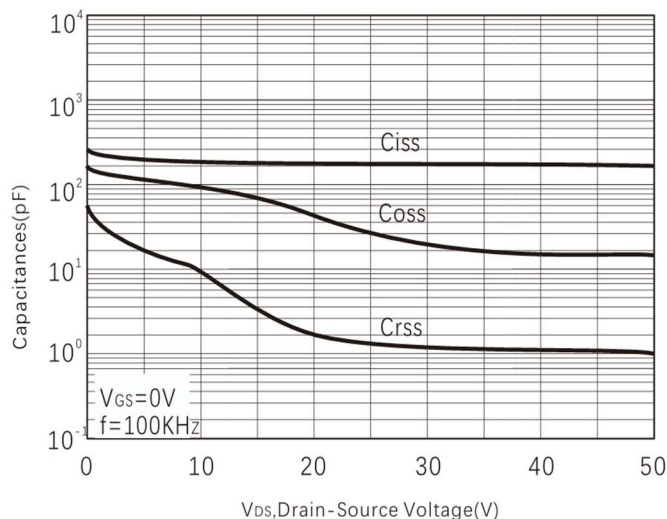


Figure 5. Gate charge

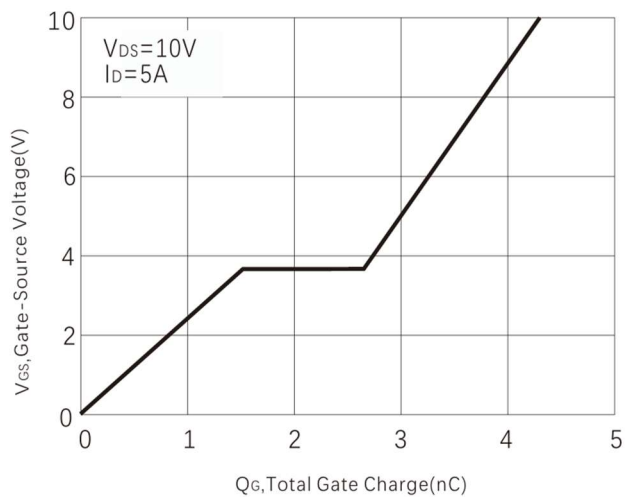


Figure 6. Transfer Characteristics

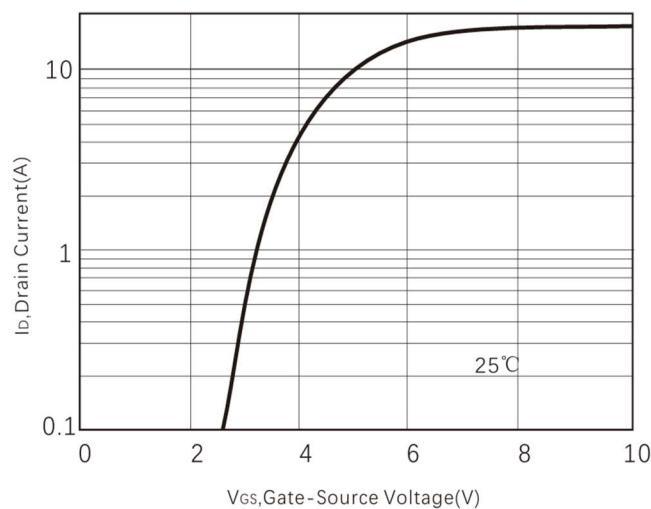


Figure 7. Maximum Drain Current vs Temperature

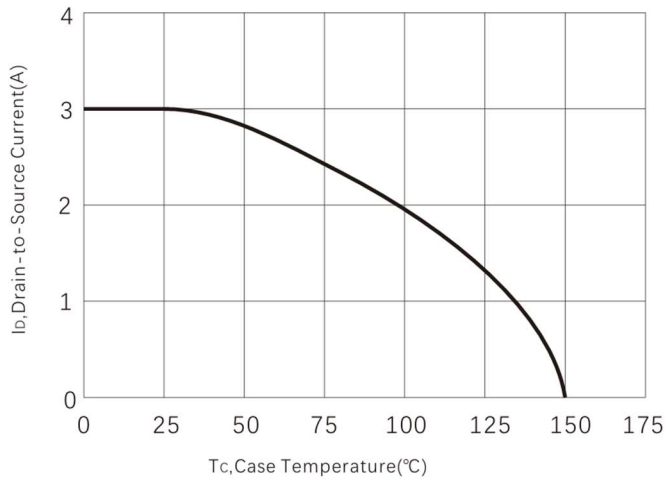


Figure 8. Normalized Threshold voltage

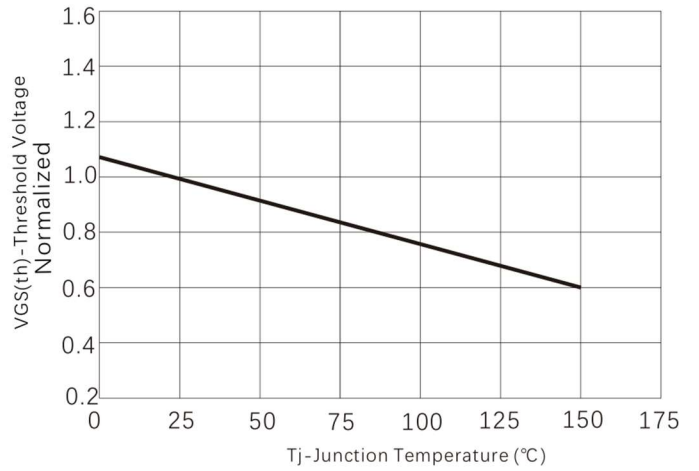


Figure 9. Safe operating area

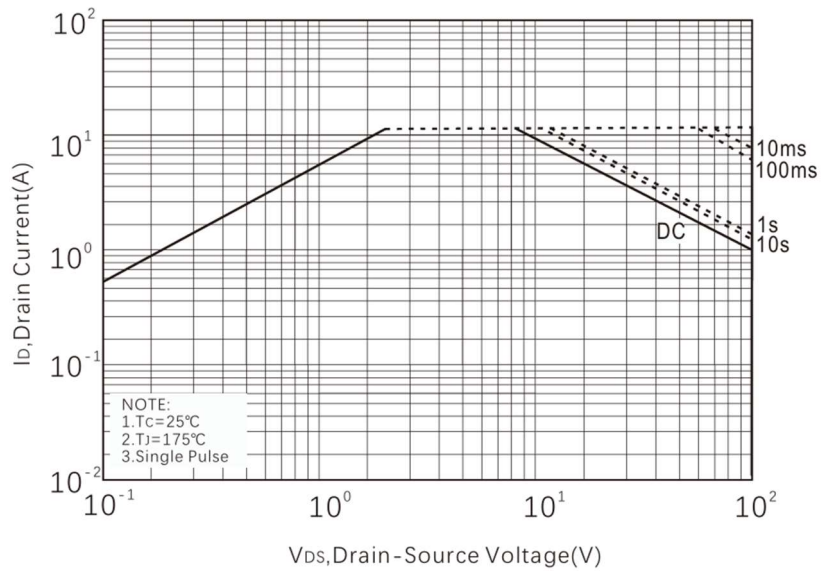
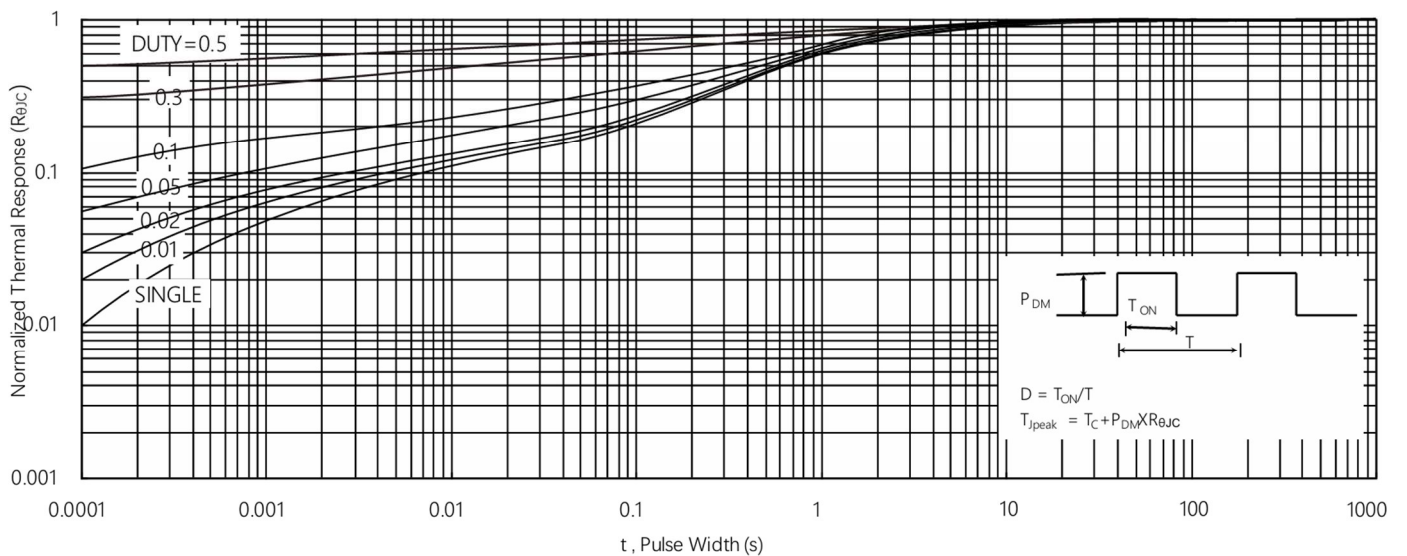
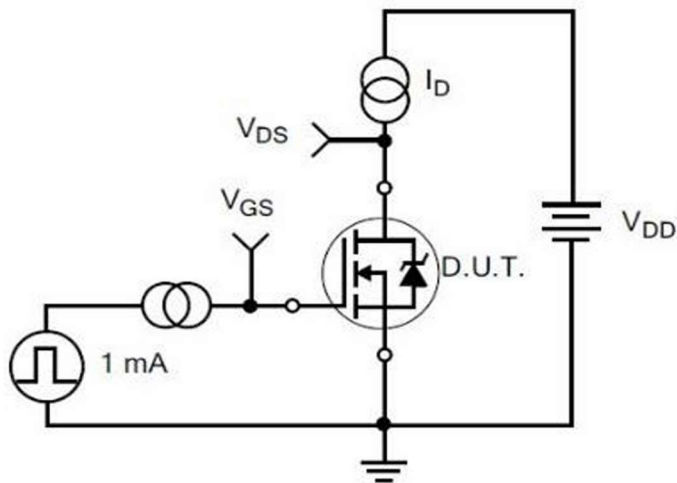


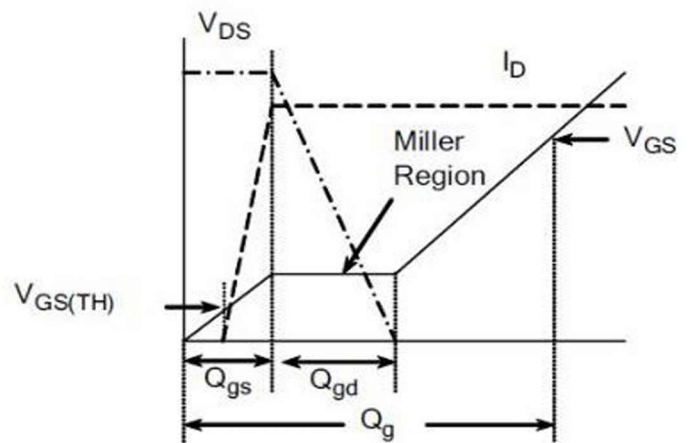
Figure 10. Normalized Maximum Transient Thermal Impedance



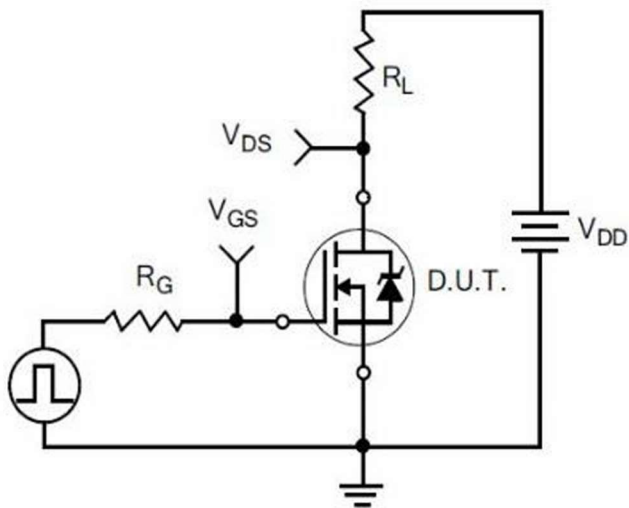
Test Circuits & Waveforms



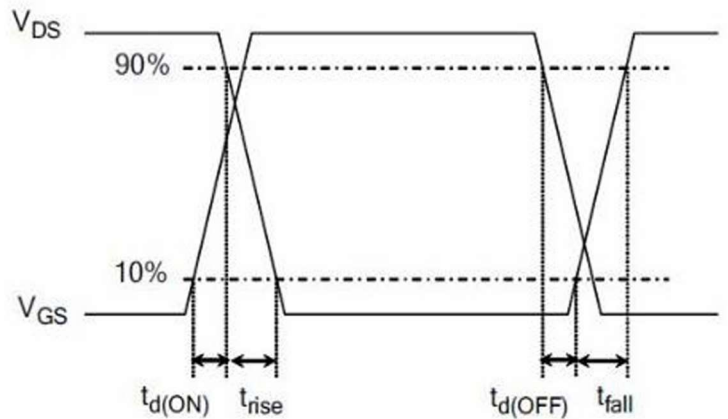
1) Gate Charge Test Circuit



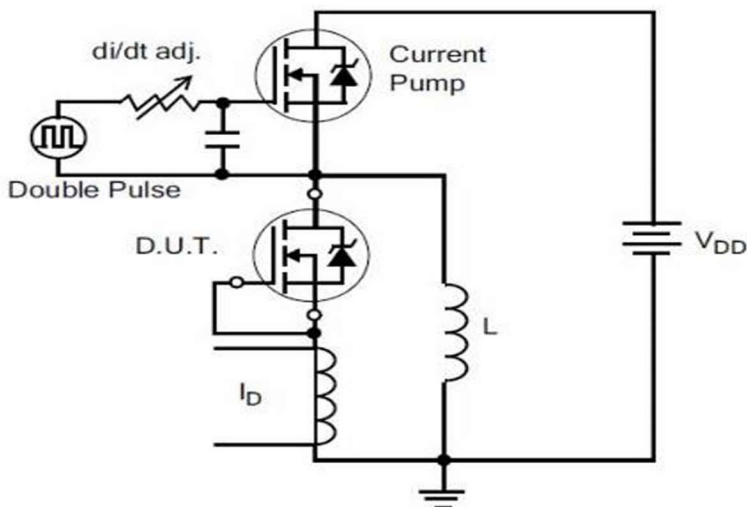
2) . Gate Charge Waveform



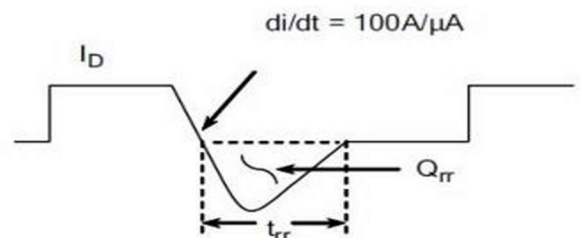
3) Resistive Switching Test Circuit



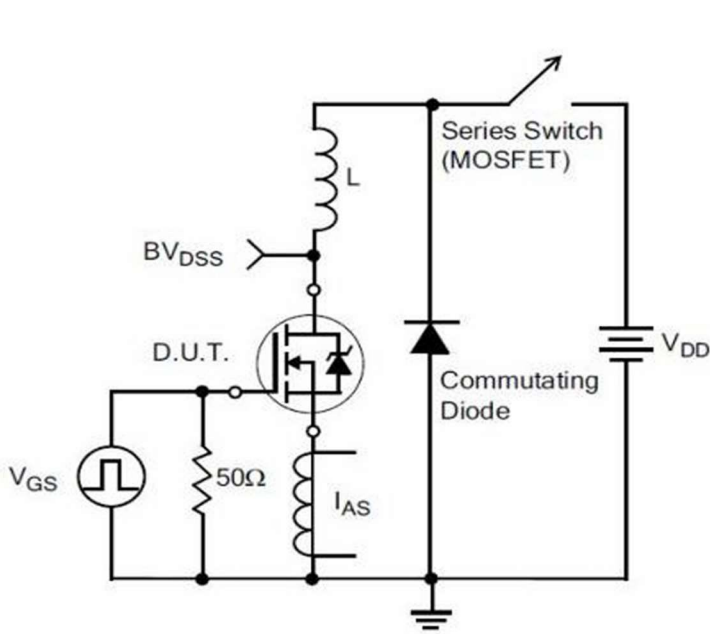
4) Resistive Switching Waveforms



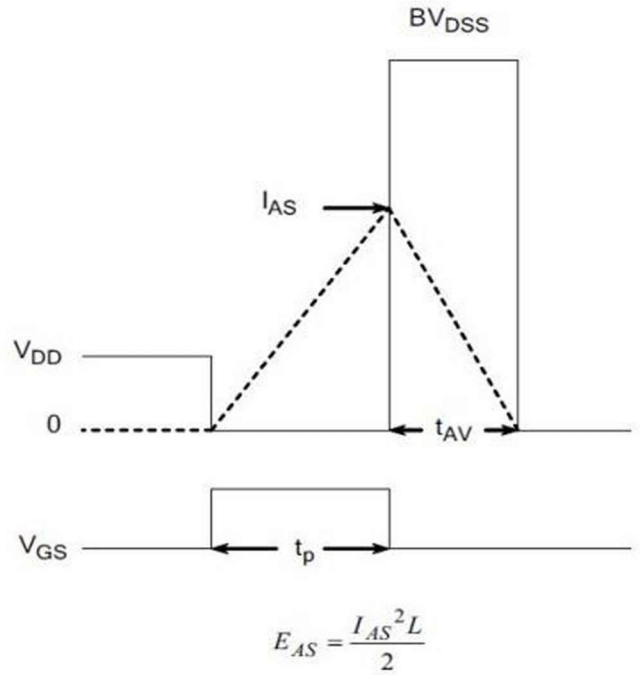
5) Diode Reverse Recovery Test Circuit



6) Diode Reverse Recovery Waveform



7) . Unclamped Inductive Switching Test Circuit

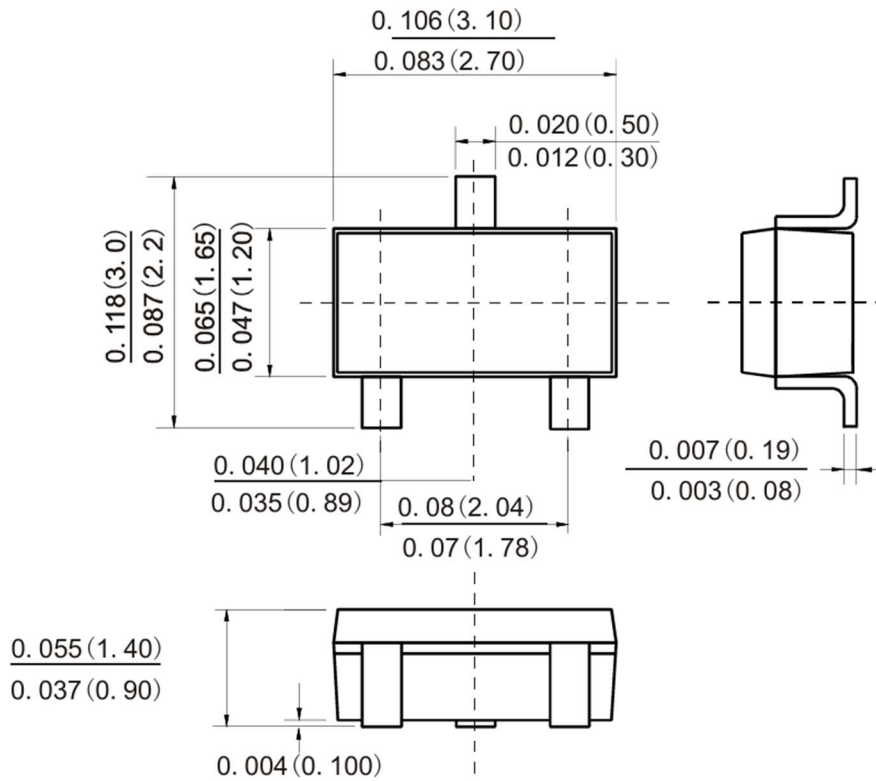


8) Unclamped Inductive Switching Waveforms

Order Information

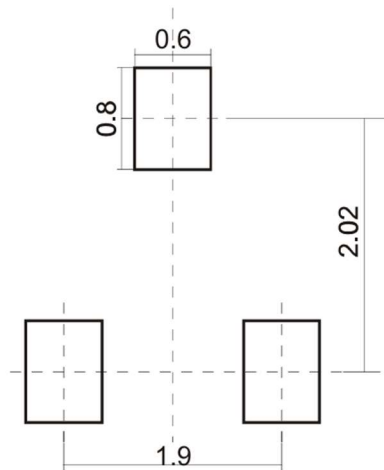
Part Number	Package	Quantity
Sh03G10A	SOT-23	3000

Package Outline Dimensions (Units: mm) SOT-23



Dimensions in inches and (millimeters)

Suggested Pad Layout



Dimensions in millimeters