SK03N50-TF

500V N-ch Planar MOSFET

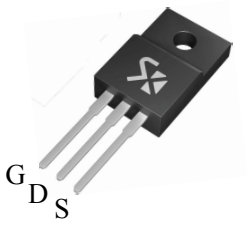
BV_{DSS}	$R_{DS(ON),typ.}$	I_D
500V	3.1Ω	3.0A

General Features

- RoHS Compliant
- $R_{DS(ON),typ.}$=3.1 Ω@V_{GS}=10V
- Low Gate Charge Minimize Switching Loss
- Fast Recovery Body Diode

Applications

- Adaptor
- Charger
- SMPS Standby Power



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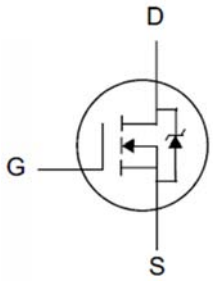
Package No to Scale



Electrical Characteristics[1] (Tj=25℃)

Parameter	Description	Min.	Typ.	Max.	Unit	Test Condition
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	500	—	—	V	V_{GS} =0V, I_D =250μA
$R_{DS(ON)}$	Static Drain-Source On-Resistance	—	3.1	3.8	Ω	V_{GS} =10V, I_D =1.5A
$V_{GS(th)}$	Gate Threshold Voltage	2	—	4	V	V_{DS}=V_{GS}, I_D =250μA
I_{DSS}	Drain-to-Source Leakage Current	—	—	1	μA	V_{DS} =500V, V_{GS} =0V
I_{GSS}	Gate-Body Leakage Current	—	—	±100	nA	V_{DS} =0V, V_{GS} =±30V

Thermal Characteristics

Symbol	Parameter	SK04N65B-TF	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	4.17	℃ /W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	100	

Typical Characteristics

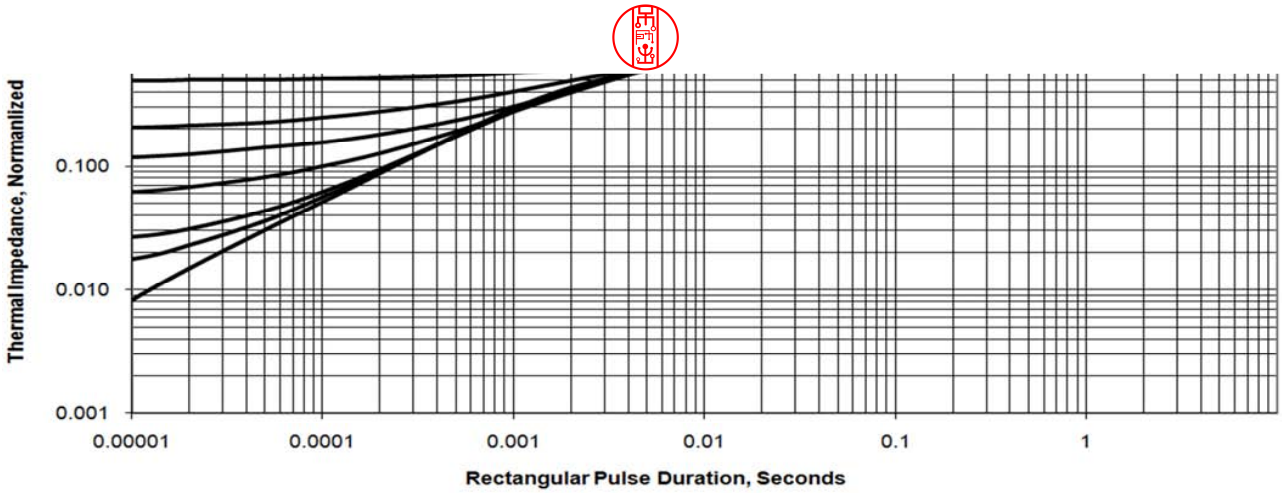


Figure 2 . Maximum Power Dissipation vs Case Temperature

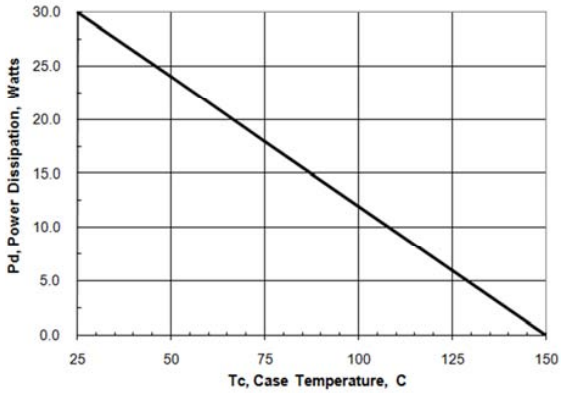


Figure 3 .Maximum Continuous Drain Current vs Case Temperature

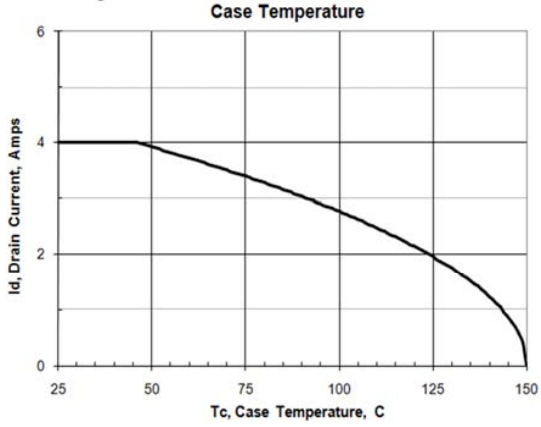


Figure 4. Typical Output Characteristics

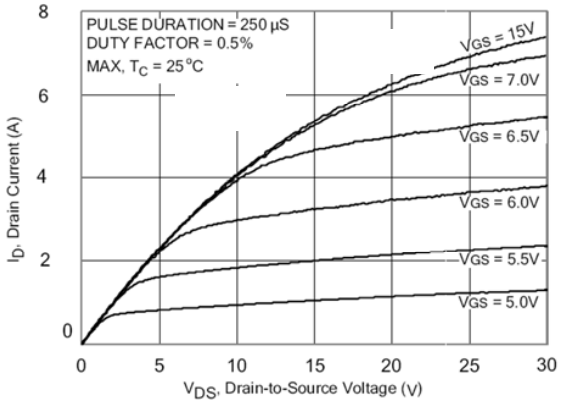
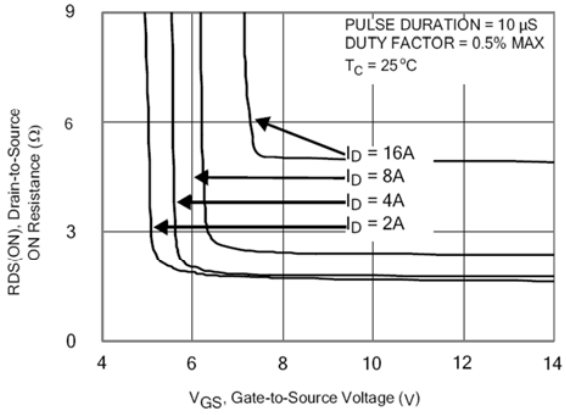


Figure 5. Typical Drain-to-Source ON Resistance vs Gate Voltage and Drain Current



Typical Characteristics(Cont.)

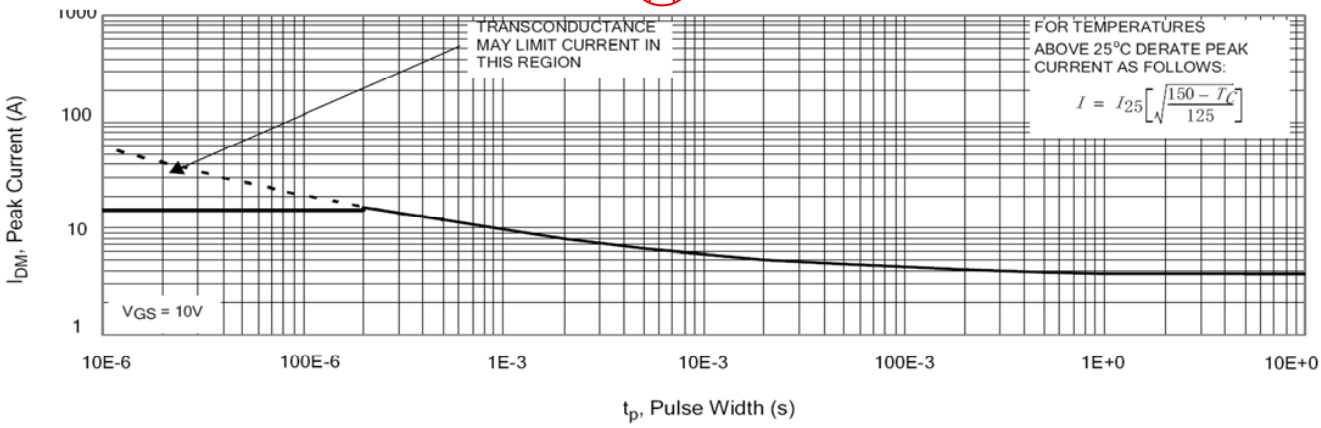
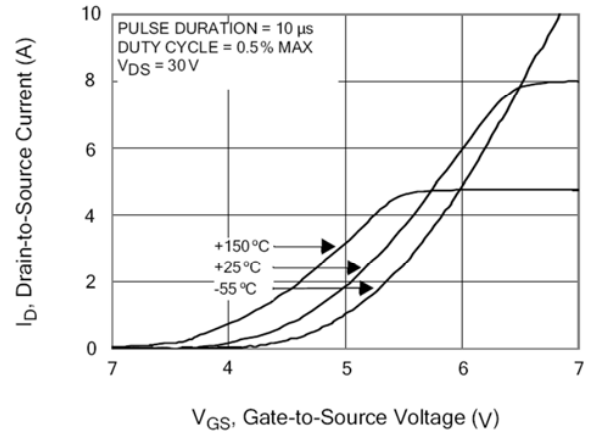


Figure 7. Typical Transfer Characteristics

Figure 8. Unclamped Inductive Switching Capability



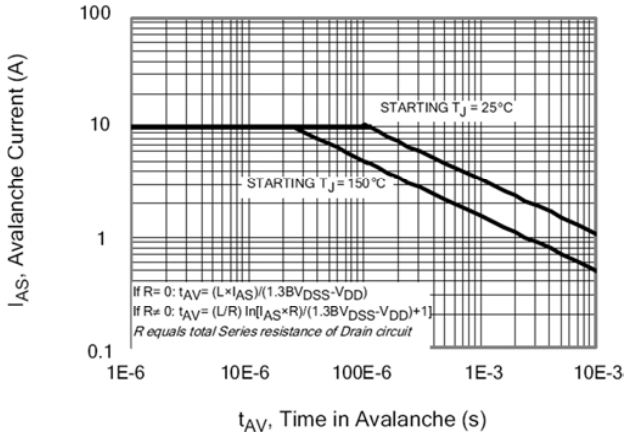
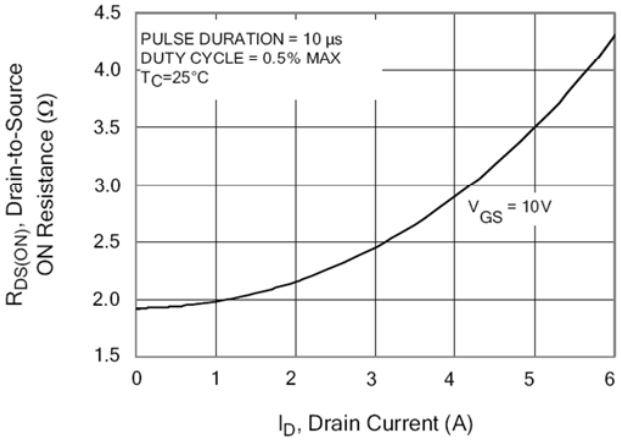
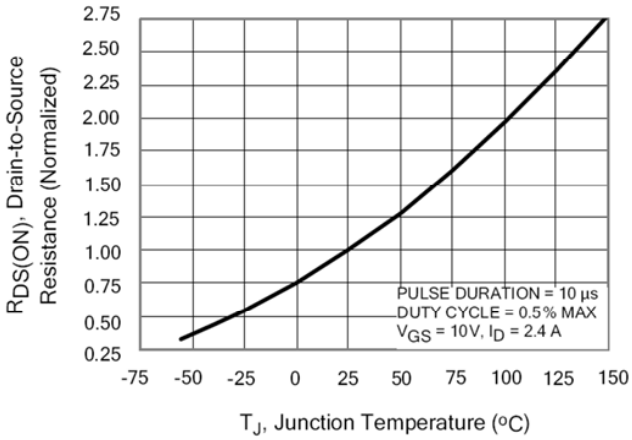


Figure 9. Typical Drain-to-Source ON Resistance vs Drain Current

Figure 10. Typical Drain-to-Source ON Resistance vs Junction Temperature





Typical Characteristics(Cont.)

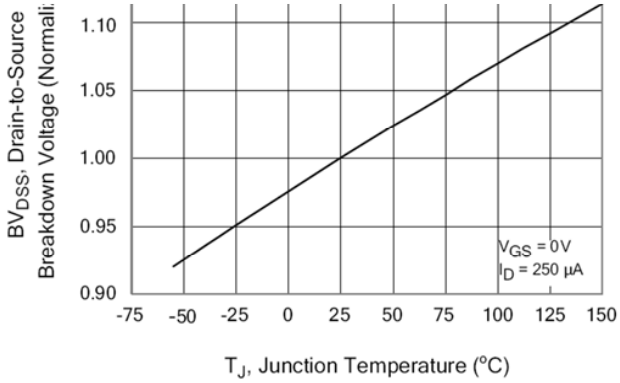


Figure 12. Typical Threshold Voltage vs Junction Temperature

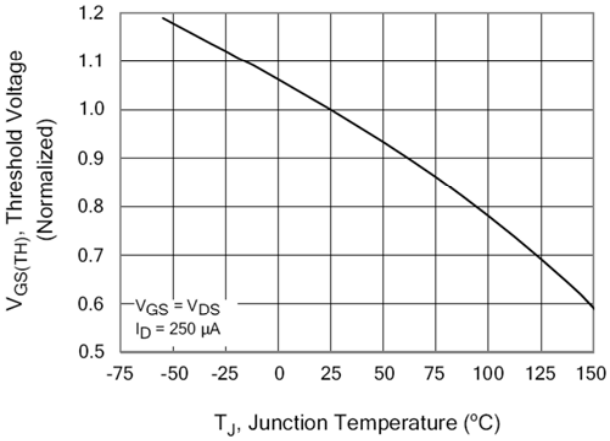


Figure 13 . Maximum Safe Operating Area

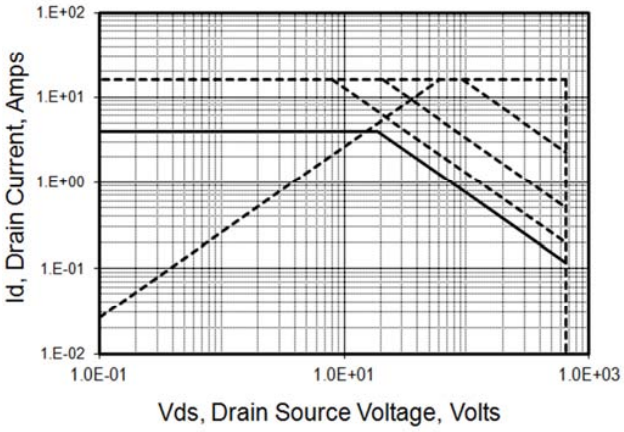


Figure 14. Typical Capacitance vs Drain-to-Source Voltage

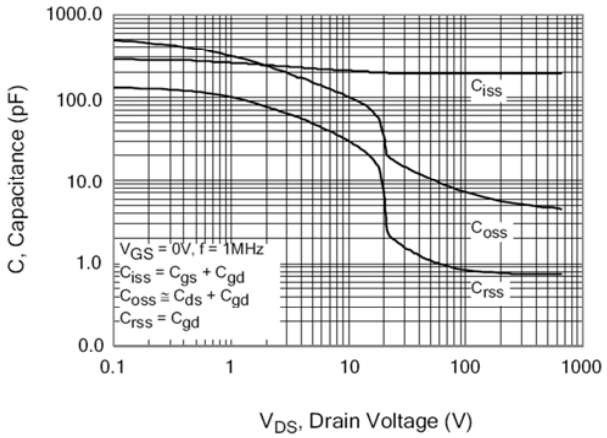


Figure 15 .Typical Gate Charge

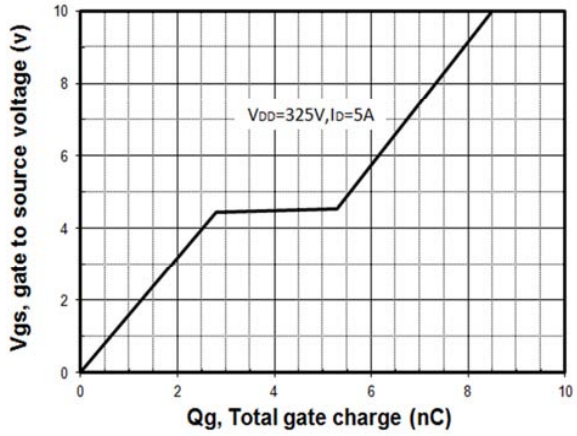
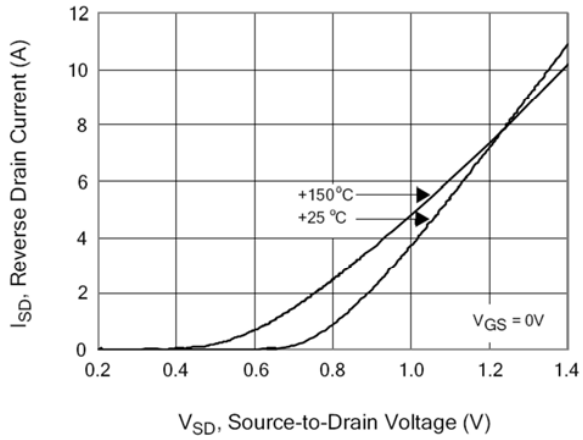


Figure 16. Typical Body Diode Transfer Characteristics



Test Circuits and Waveforms

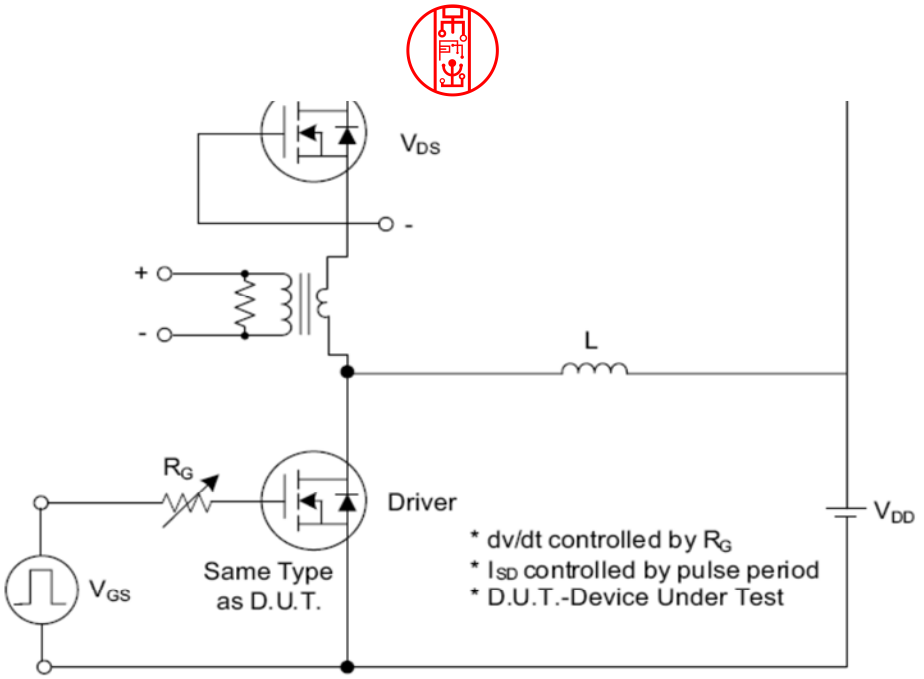


Fig. 1.1 Peak Diode Recovery dv/dt Test Circuit

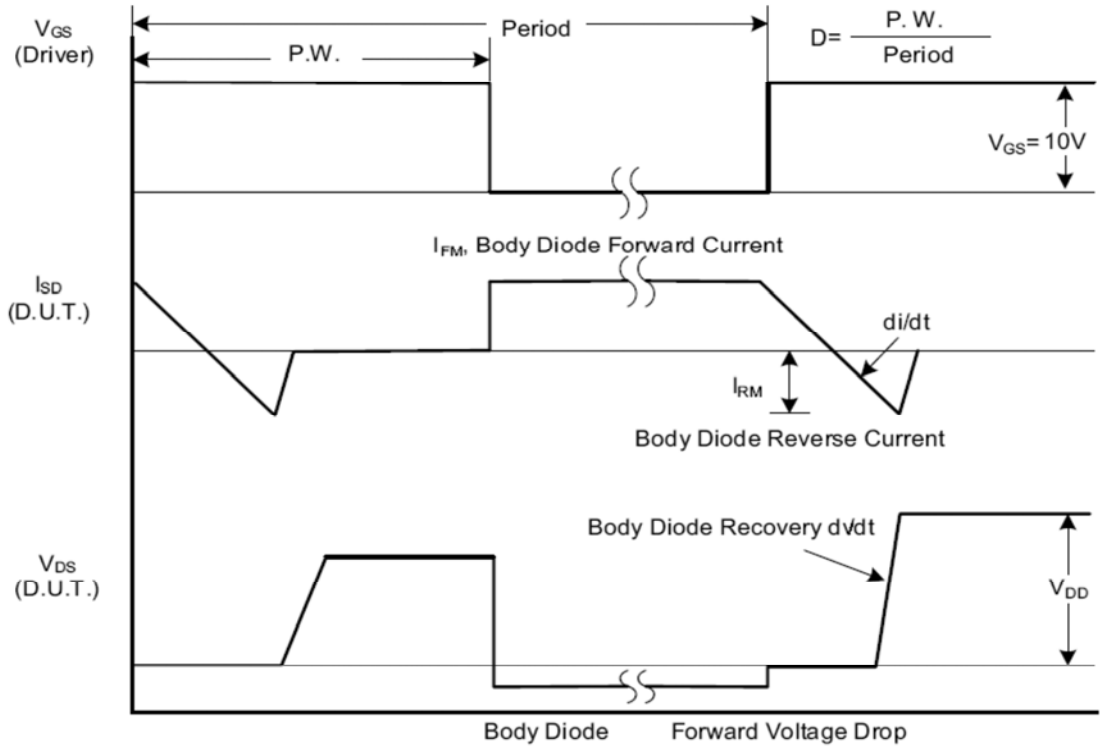


Fig. 1.2 Peak Diode Recovery dv/dt Waveforms

Test Circuits and Waveforms **(Cont.)**

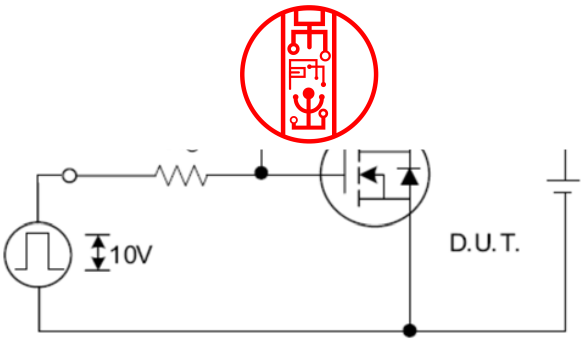


Fig. 2.1 Switching Test Circuit

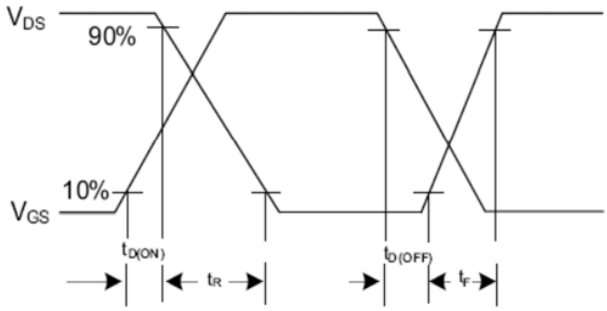


Fig. 2.2 Switching Waveforms

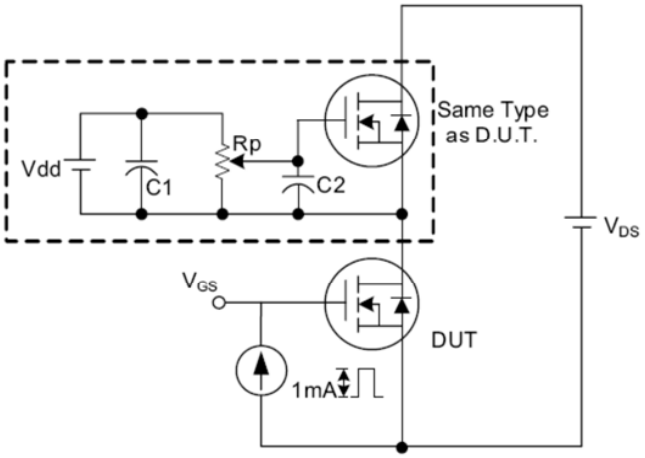


Fig. 3 . 1 Gate Charge Test Circuit

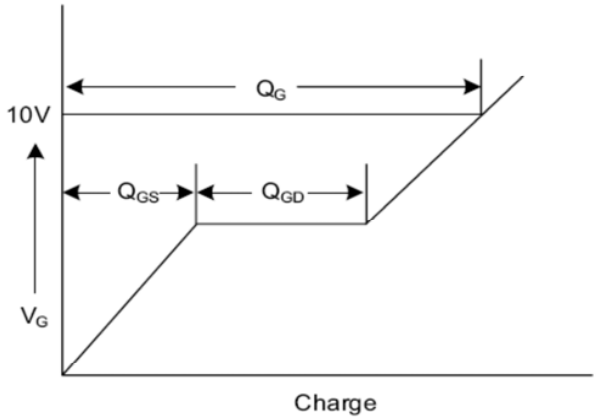


Fig. 3 . 2 Gate Charge Waveform

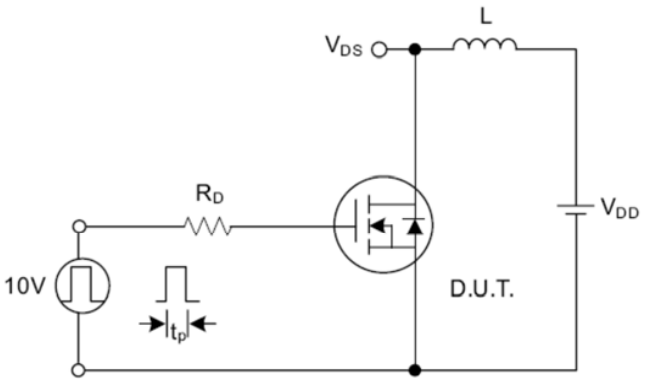


Fig. 4.1 Unclamped Inductive Switching Test Circuit

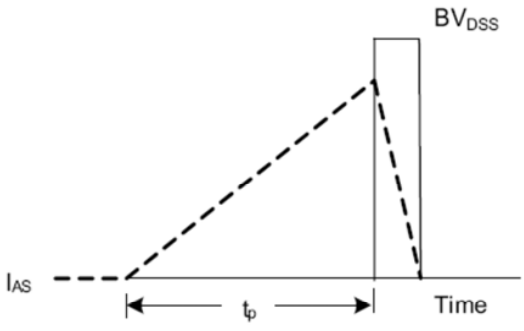


Fig. 4.2 Unclamped Inductive Switching Waveforms

PACKAGE INFORMATION

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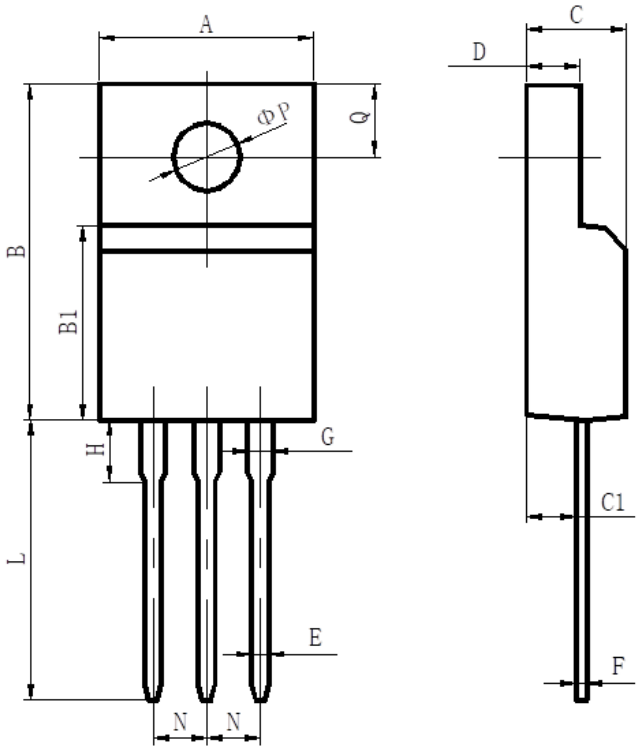

	Unit (mm)	
	MIN	MAX
A	9.70	10.30
B	15.50	16.10
B1	8.99	9.39
C	4.40	4.80
C1	2.15	2.55
D	2.50	2.90
E	0.70	0.90
F	0.40	0.60
G	1.12	1.42
H	3.40	3.80
L	12.6	13.6
N	2.34	2.74
Q	3.15	3.55
ΦP	3.00	3.30