AUK Semiconductor

SMK0765F

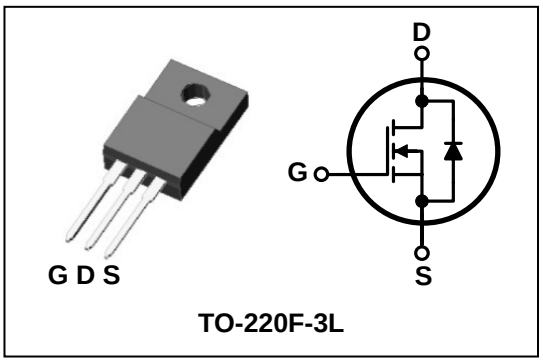
Advanced N-Ch Power MOSFET

SWITCHING REGULATOR APPLICATIONS

Features

- High Voltage: BV_{DSS}=650V(Min.)
- Low C_{rss} : C_{rss}=10.2pF(Typ.)
- Low gate charge : Qg=23nC(Typ.)
- Low $R_{DS(on)}$:$R_{DS(on)}$=1.4Ω(Max.)

PIN Connection



TO-220F-3L

Ordering Information

Type No.	Marking	Package Code
SMK0765F	SMK0765	TO-220F-3L

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

Characteristic	Symbol		Rating	Unit
Drain-source voltage	V_{DSS}		650	V
Gate-source voltage	V_{GSS}		±30	V
Drain current (DC) *	I_D	(Tc=25℃)	7	A
		(Tc=100℃)	3.4	A
Drain current (Pulsed) *	I_{DM}		28	A
Drain power dissipation	P_D		40	W
Avalanche current (Single) ②	I_{AS}		7	A
Single pulsed avalanche energy ②	E_{AS}		201	mJ
Avalanche current (Repetitive) ①	I_{AR}		7	A
Repetitive avalanche energy ①	E_{AR}		14.7	mJ
Junction temperature	T_J		150	°C
Storage temperature range	T_{stg}		-55~150	

* Limited by maximum junction temperature

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	3.12	℃/W
	Junction-ambient	$R_{th(J-a)}$	-	62.5	

Electrical Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=250μA, V_{GS}=0	650	-	-	V
Gate threshold voltage	$V_{GS(th)}$	I_D=250μA, V_{DS}= V_{GS}	2.0	-	4.0	V
Drain-source cut-off current	I_{DSS}	V_{DS}=650V, V_{GS}=0V	-	-	1	μA
Gate leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V	-	-	±100	nA
Drain-source on-resistance ④	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.5A	-	1.2	1.4	Ω
Forward transfer conductance ④	g_{fs}	V_{DS}=10V, I_D=3.5A	-	8.1	-	S
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V f=1MHz	-	1006	1258	pF
Output capacitance	Coss		-	98	123	
Reverse transfer capacitance	Crss		-	10	15	
Turn-on delay time	$t_{d(on)}$	V_{DD}=300V, I_D=7A R_G=25Ω ③④	-	18	-	ns
Rise time	t_r		-	19	-	
Turn-off delay time	$t_{d(off)}$		-	72	-	
Fall time	t_f		-	28	-	
Total gate charge	Q_g	V_{DS}=520V, V_{GS}=10V I_D=7A ③④	-	21	27	nC
Gate-source charge	Q_{gs}		-	6	-	
Gate-drain charge	Q_{gd}		-	5	-	

Source-Drain Diode Ratings and Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Source current (DC)	I_S	Integral reverse diode in the MOSFET	-	-	7	A
Source current (Pulsed) ①	I_{SM}		-	-	28	
Forward voltage ④	V_{SD}	V_{GS}=0V, I_S=7A	-	-	1.4	V
Reverse recovery time	t_{rr}	I_s=7A, V_{GS}=0, di_S/dt=100A/ us	-	365	-	ns
Reverse recovery charge	Q_{rr}		-	3.4	-	uC

Note ;

① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature

② L=7.6mH, I_{AS}=7A, V_{DD}=50V, R_G=27Ω

③ Pulse Test : Pulse Width < 300us, Duty cycle≤ 2%

④ Essentially independent of operating temperature

Electrical Characteristic Curves

Fig. 1 I_D - V_{DS}

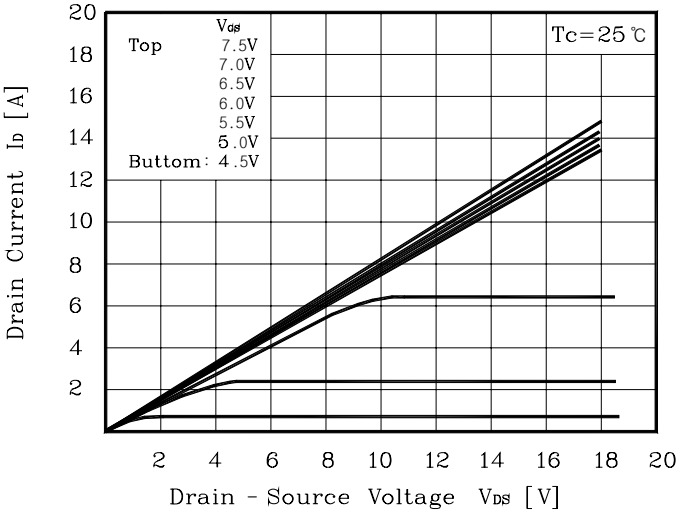


Fig. 2 I_D - V_{GS}

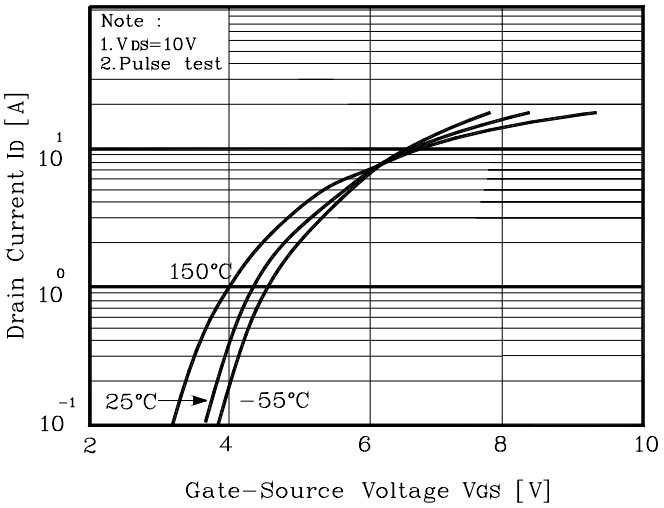


Fig. 3 $R_{DS(on)}$ - I_D

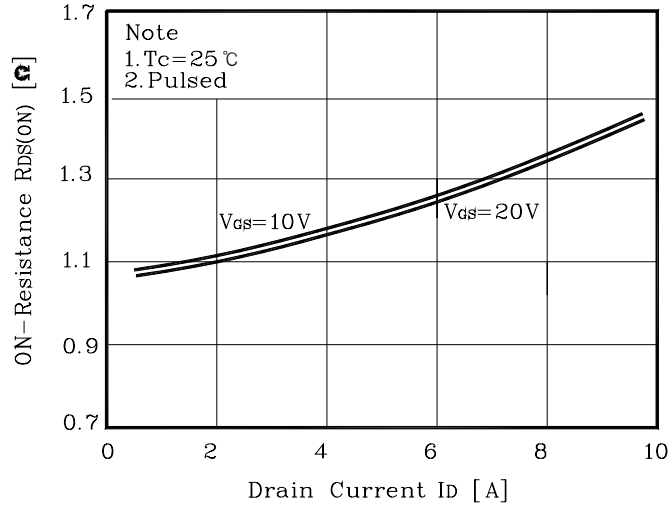


Fig. 4 I_S - V_{SD}

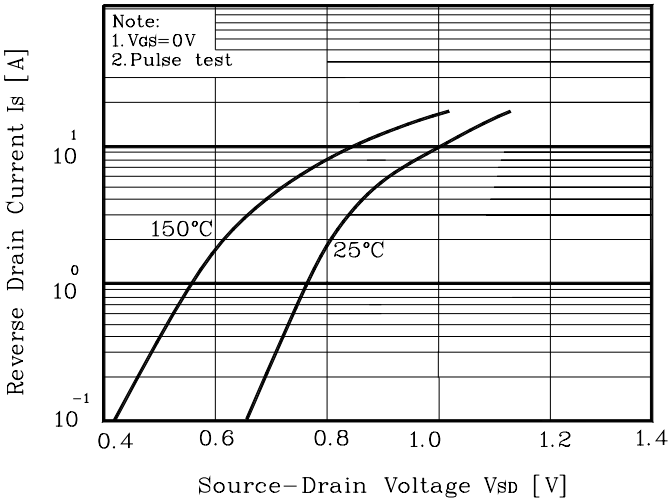


Fig. 5 Capacitance - V_{DS}

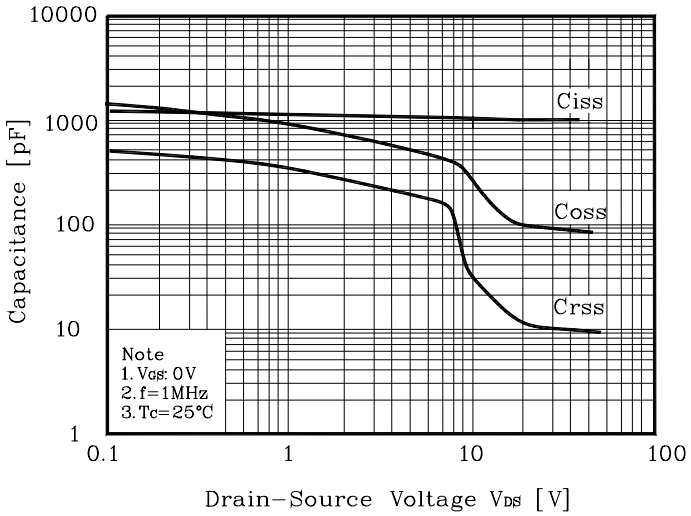
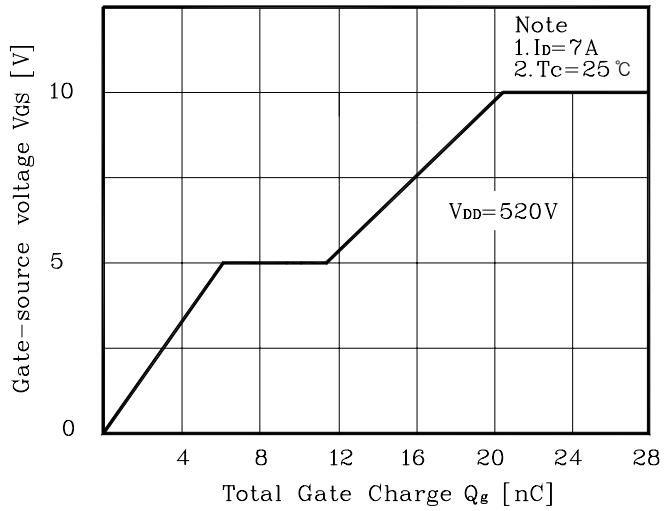


Fig.6 V_{GS} - Q_G



Electrical Characteristic Curves

Fig. 7 V_{DSS} - T_J

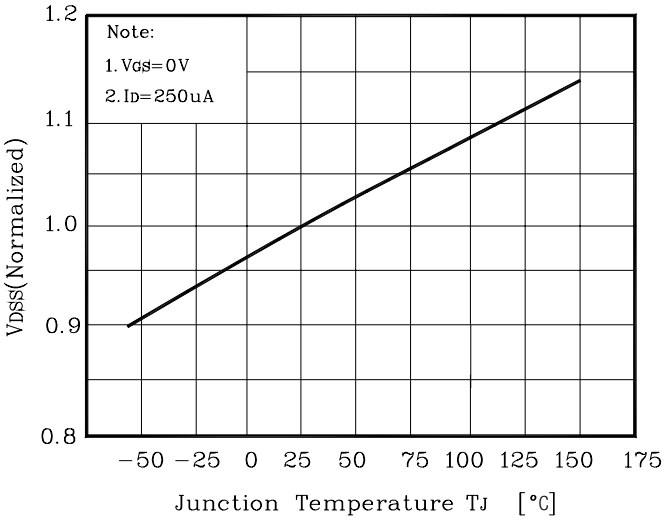


Fig.8 $R_{DS(on)}$ - T_J

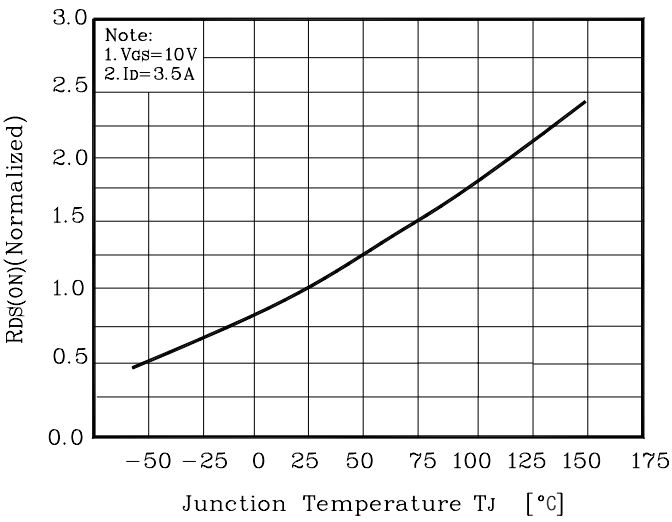


Fig. 9 I_D - T_C

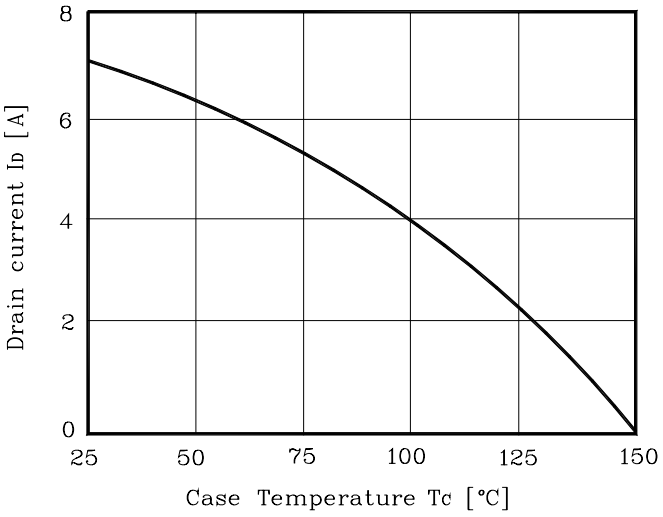


Fig. 10 Safe Operating Area

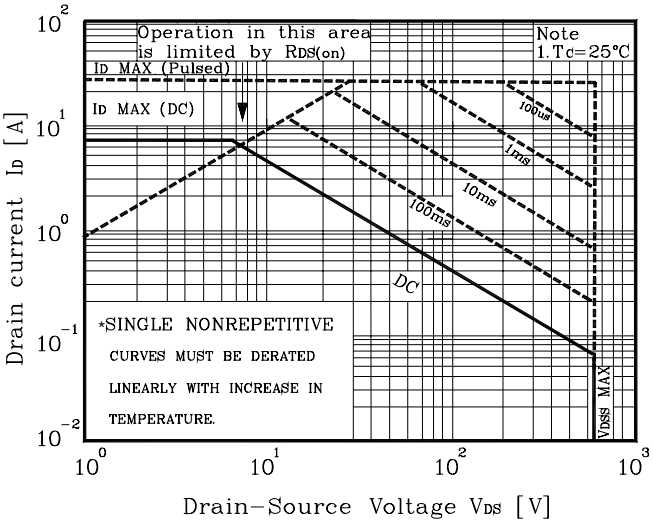


Fig. 10 Gate Charge Test Circuit & Waveform

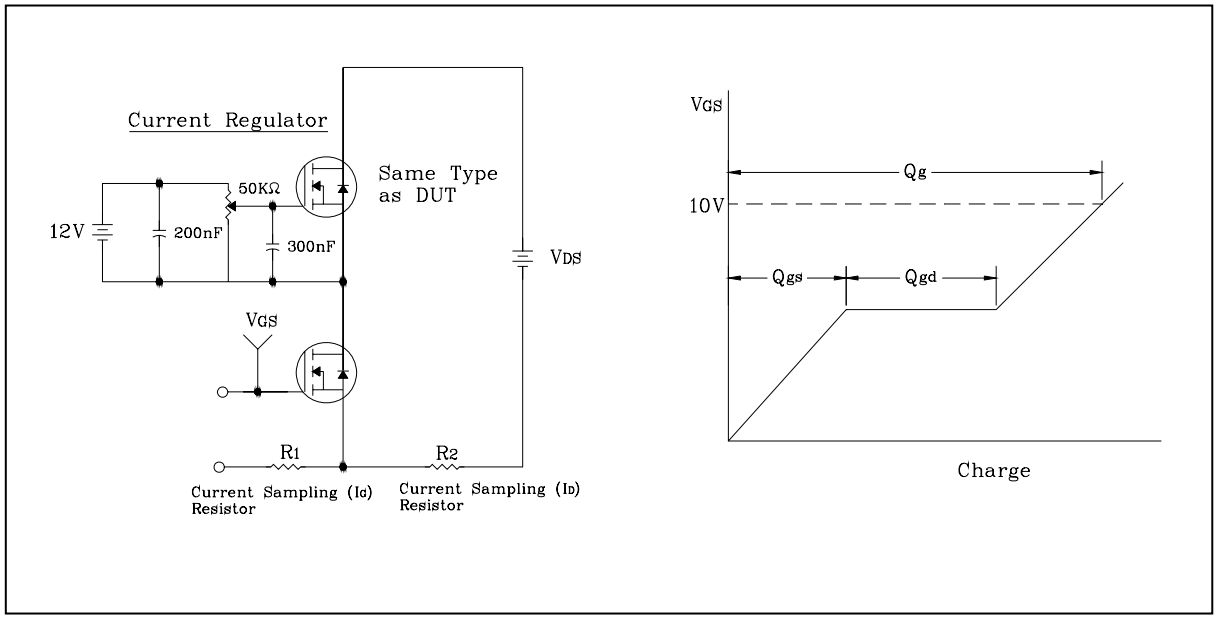


Fig. 11 Resistive Switching Test Circuit & Waveform

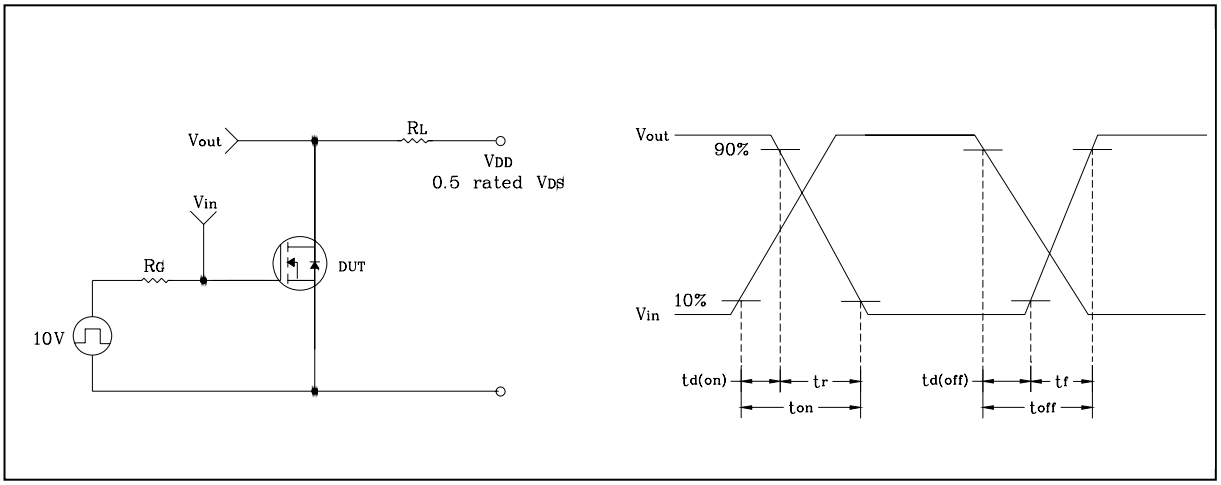


Fig. 12 E_{AS} Test Circuit & Waveform

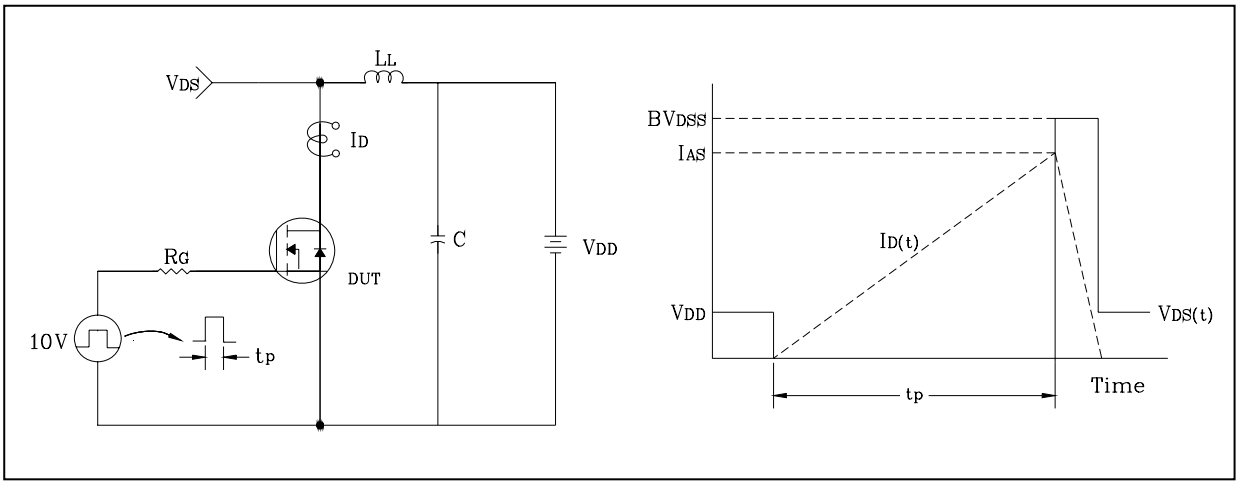
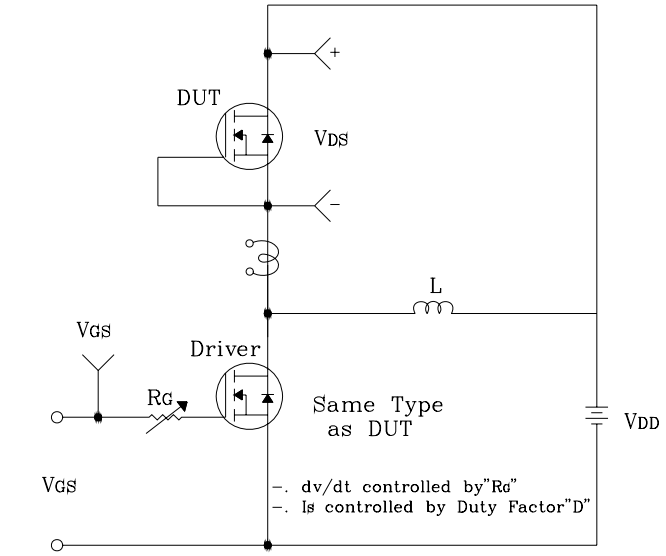
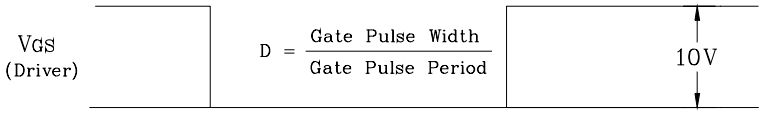
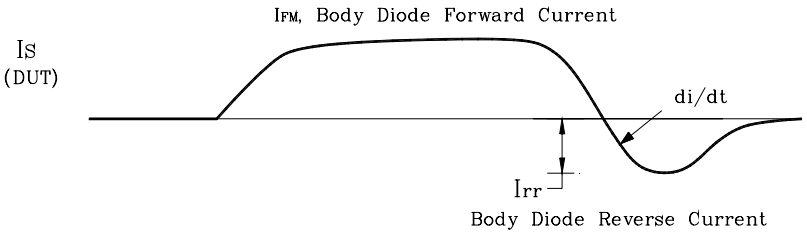
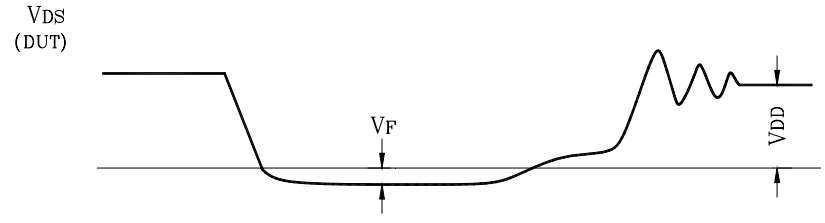


Fig. 13 Diode Reverse Recovery Time Test Circuit & Waveform

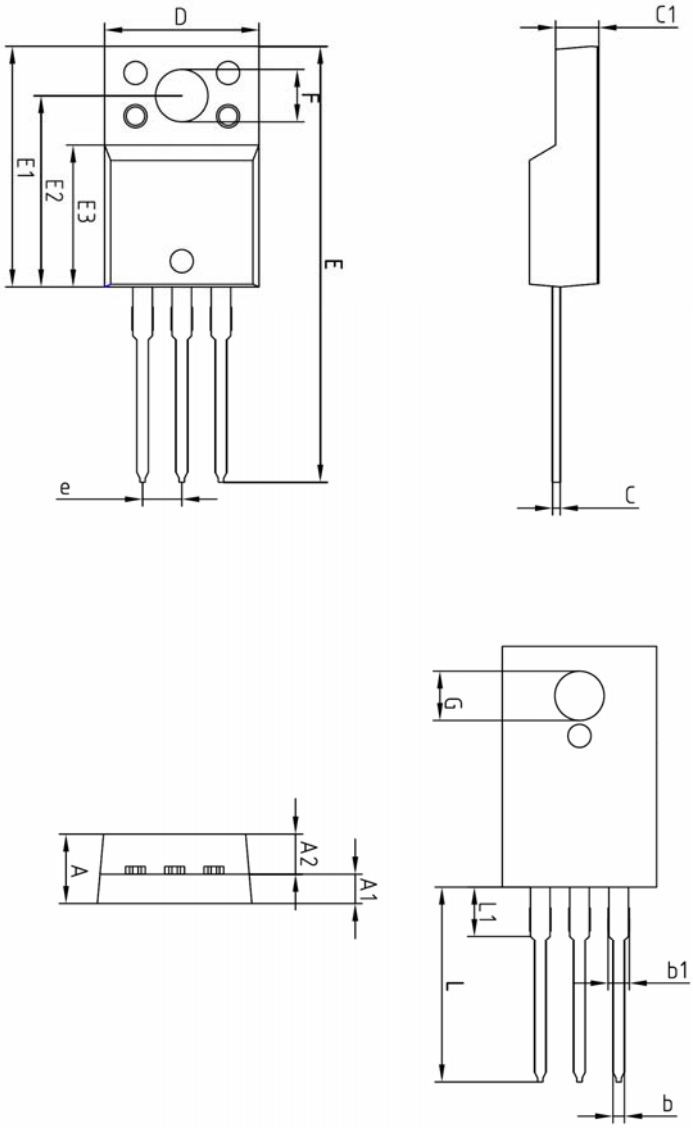








Outline Dimensions



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			

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Specifications mentioned in this publication are subject to change without notice.

AUK Semiconductor

SMK0825F

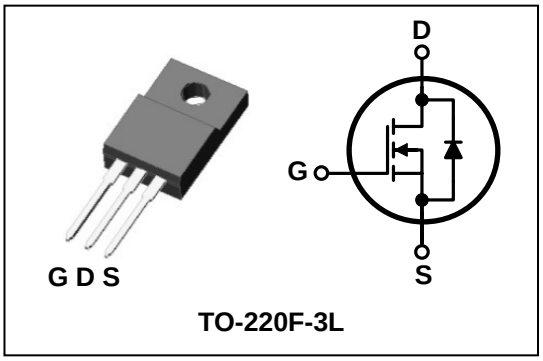
Advanced Power MOSFET

DC-DC CONVERTER APPLICATION
HIGH VOLTAGE SWITCHING APPLICATIONS

Features

- High Voltage: BV_{DSS}=250V(Min.)
- Low C_{rss} : C_{rss}=33pF(Typ.)
- Low gate charge : Q_g=14.5nC(Typ.)
- Low $R_{DS(on)}$:$R_{DS(on)}$=0.43Ω(Max.)

PIN Connection



Ordering Information

Type NO.	Marking	Package Code
SMK0825F	SMK0825	TO-220F-3L

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

Characteristic	Symbol		Rating	Unit
Drain-source voltage	V_{DSS}		250	V
Gate-source voltage	V_{GSS}		±30	V
Drain current (DC)	I_D	(T_C=25℃)	8	A
		(T_C=100℃)	5.2	A
Drain current (Pulsed) *	I_{DM}		32	A
Drain power dissipation	P_D		29	W
Avalanche current (Single) ②	I_{AS}		8	A
Single pulsed avalanche energy ②	E_{AS}		356	mJ
Avalanche current (Repetitive) ①	I_{AR}		8	A
Repetitive avalanche energy ①	E_{AR}		7.4	mJ
Junction temperature	T_J		150	℃
Storage temperature range	T_{stg}		-55~150	

* Limited by maximum junction temperature

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	4.31	℃/W
	Junction-ambient	$R_{th(J-A)}$	-	62.5	

Electrical Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=250μA, V_{GS}=0	250	-	-	V
Gate threshold voltage	$V_{GS(th)}$	I_D=250μA, V_{DS}= V_{GS}	2.0	-	4.0	V
Drain-source cut-off current	I_{DSS}	V_{DS}=250V, V_{GS}=0V	-	-	1	μA
Gate leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V	-	-	±100	nA
Drain-source on-resistance ④	$R_{DS(ON)}$	V_{GS}=10V, I_D=4.0A	-	0.35	0.43	Ω
Forward transfer conductance ④	g_{fs}	V_{DS}=10V, I_D=4.0A	-	7.0	-	S
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V, f=1MHz	-	619	773	pF
Output capacitance	Coss		-	141	176	
Reverse transfer capacitance	Crss		-	33	41	
Turn-on delay time	$t_{d(on)}$	V_{DD}=125V, I_D=8A R_G=25Ω ③④	-	15	-	ns
Rise time	t_r		-	85	-	
Turn-off delay time	$t_{d(off)}$		-	90	-	
Fall time	t_f		-	65	-	
Total gate charge	Q_g	V_{DS}=200V, V_{GS}=10V I_D=8A ③④	-	14.5	18.2	nC
Gate-source charge	Q_{gs}		-	4.0	-	
Gate-drain charge	Q_{gd}		-	4.5	-	

Source-Drain Diode Ratings and Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Source current	I_S	Integral reverse diode in the MOSFET	-	-	8	A
Source current(Plused) ①	I_{SM}		-	-	32	
Forward voltage ④	V_{SD}	V_{GS}=0V, I_S=8A	-	-	1.4	V
Reverse recovery time	t_{rr}	I_s=8A, V_{GS}=0, di_S/dt=100A/us	-	178	-	ns
Reverse recovery charge	Q_{rr}		-	1.16	-	uC

Note ;

① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature

② L=8.9mH, I_{AS}=8A, V_{DD}=50V, R_G=27Ω

③ Pulse Test : Pulse Width < 300us, Duty cycle≤ 2%

④ Essentially independent of operating temperature

Electrical Characteristic Curves

Fig. 1 I_D - V_{DS}

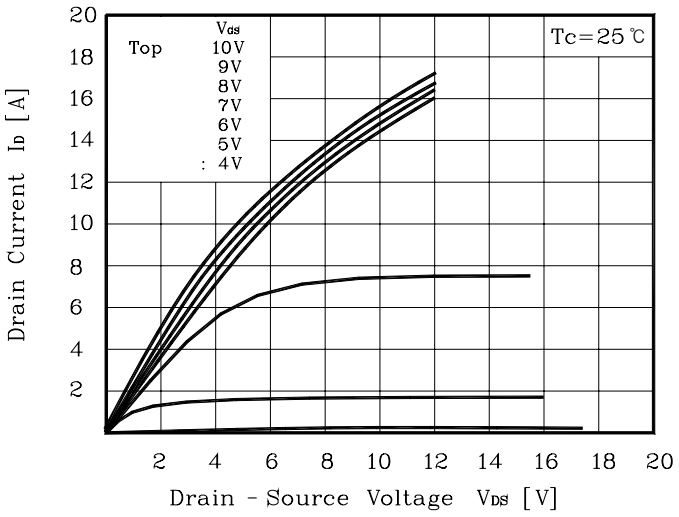


Fig. 2 I_D - V_{GS}

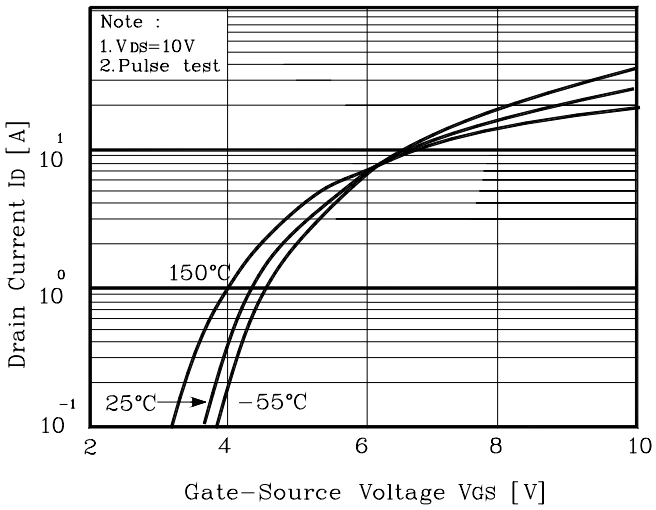


Fig. 3 $R_{DS(on)}$ - I_D

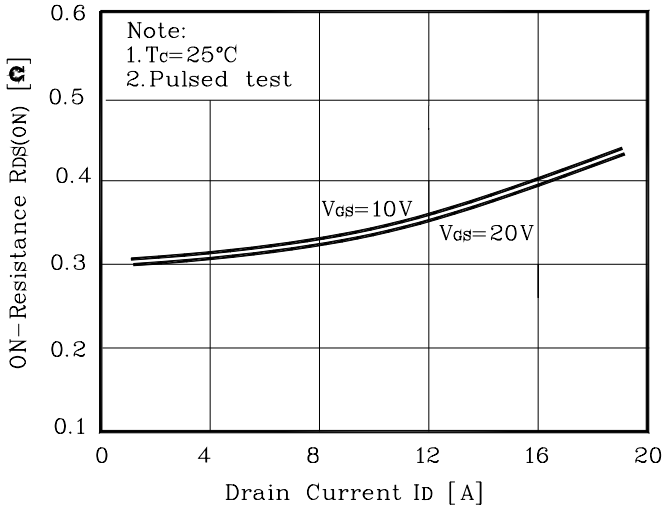


Fig. 4 I_S - V_{SD}

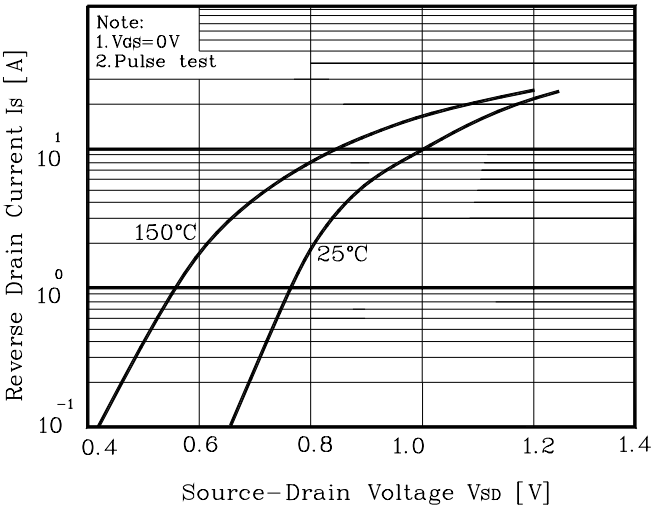


Fig. 5 Capacitance - V_{DS}

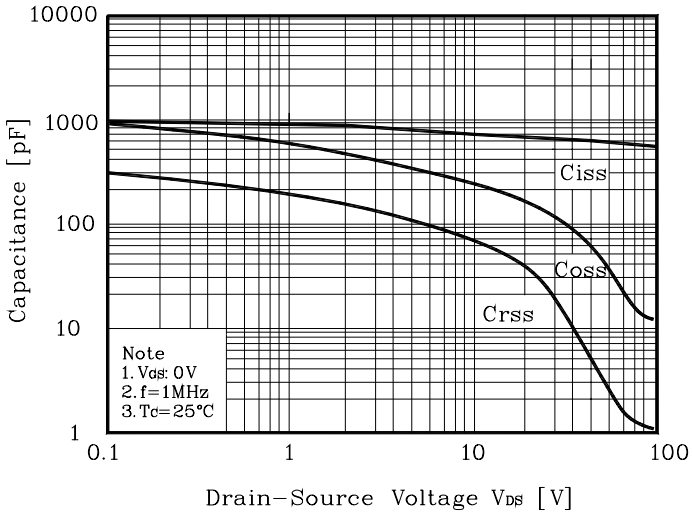


Fig. 6 V_{GS} - Q_G

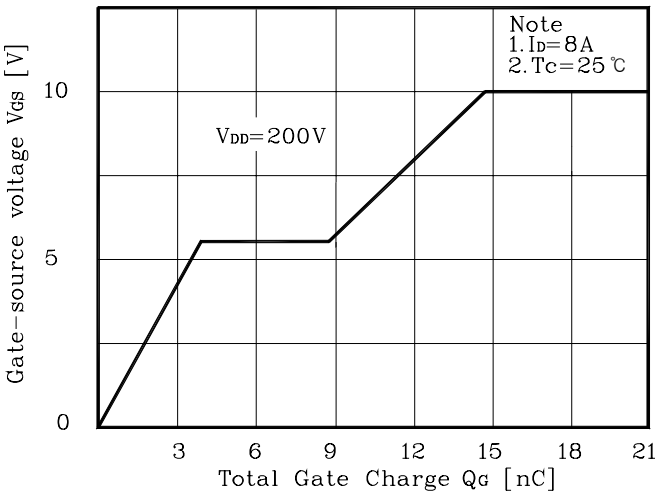


Fig. 7 V_{DSS} - T_J

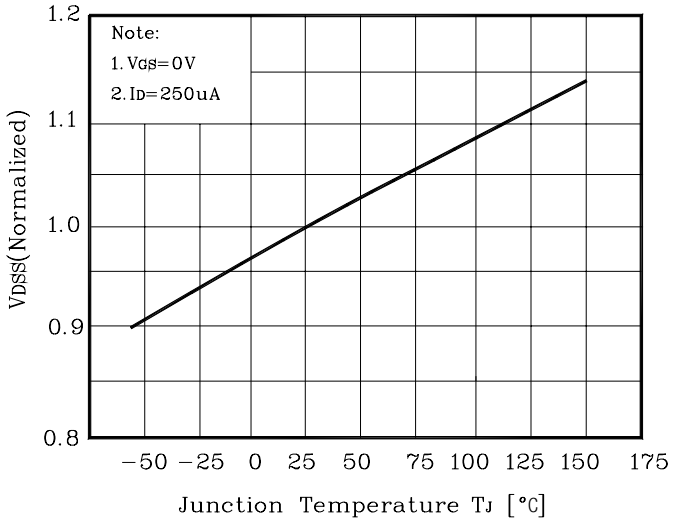


Fig. 8 $R_{DS(on)}$ - T_J

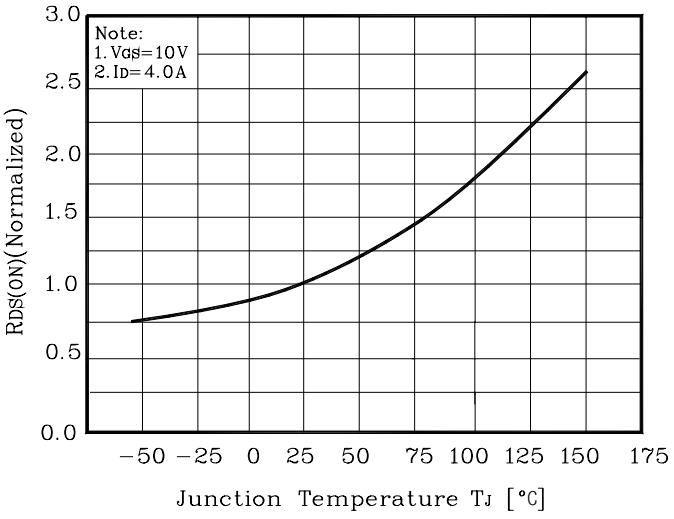


Fig. 9 I_D - T_C

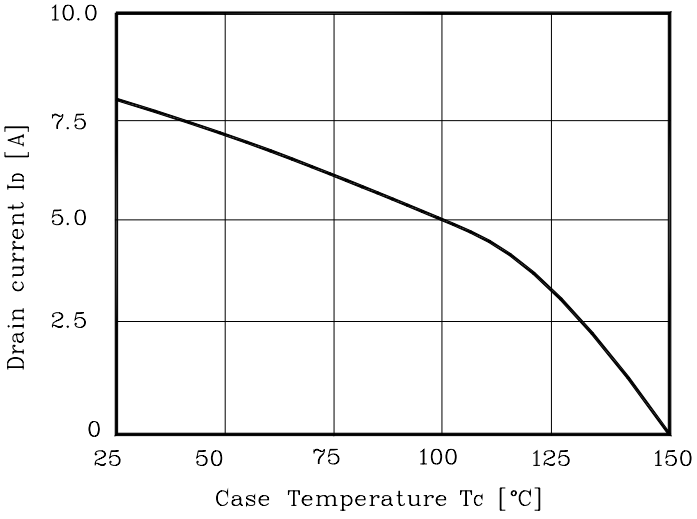


Fig. 10 Safe Operating Area

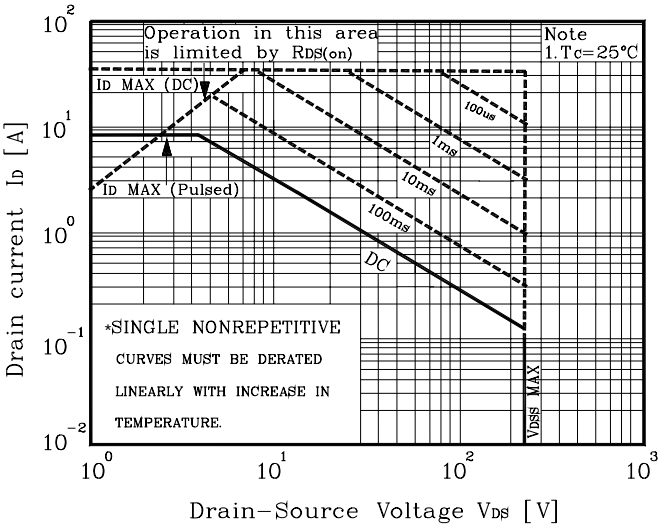


Fig. 11 Gate Charge Test Circuit & Waveform

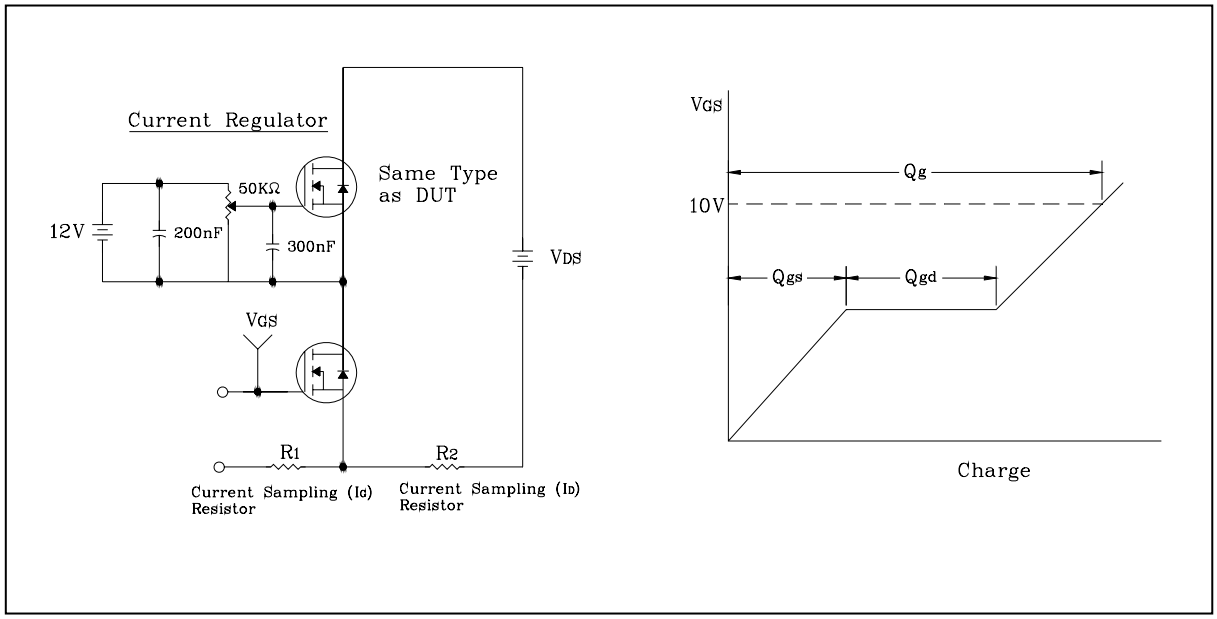


Fig. 12 Resistive Switching Test Circuit & Waveform

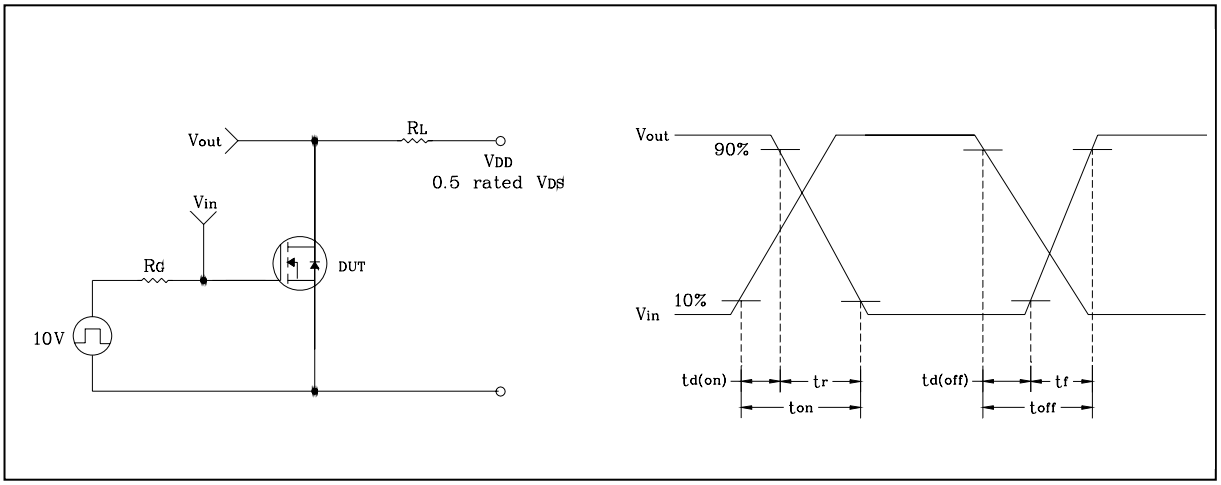


Fig. 13 E_{AS} Test Circuit & Waveform

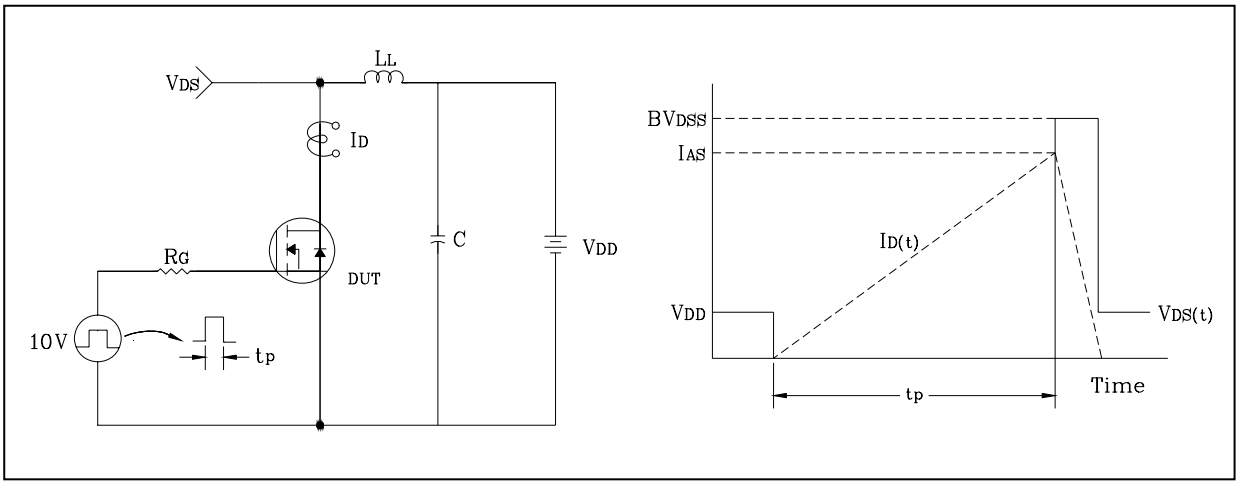
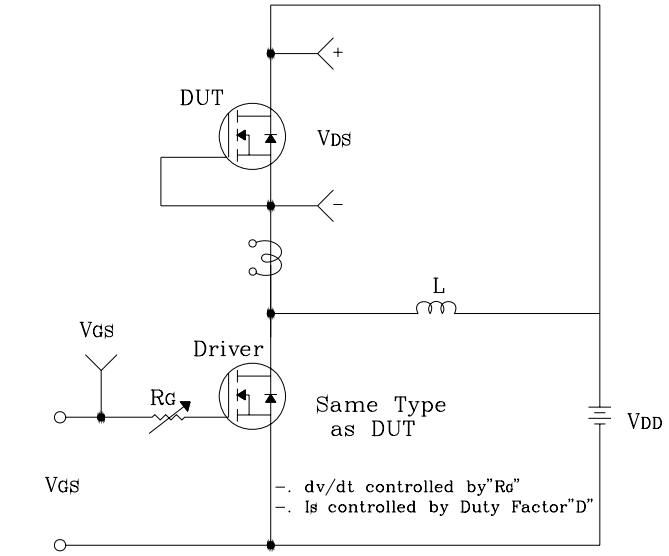
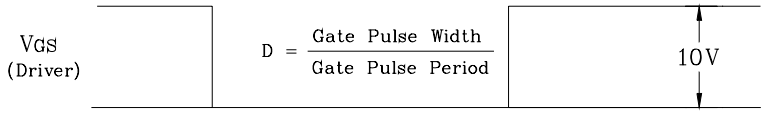
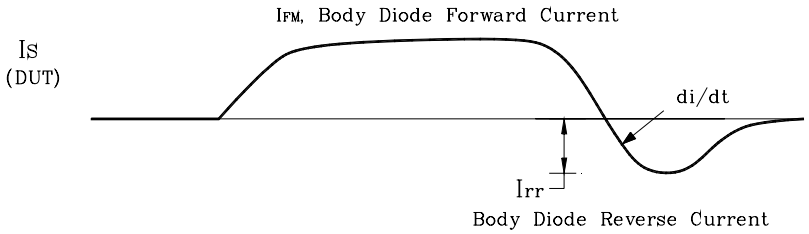
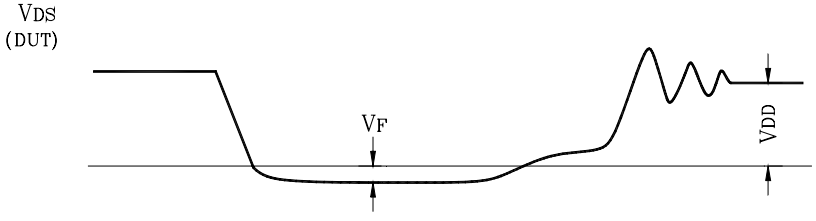


Fig. 14 Diode Reverse Recovery Time Test Circuit & Waveform

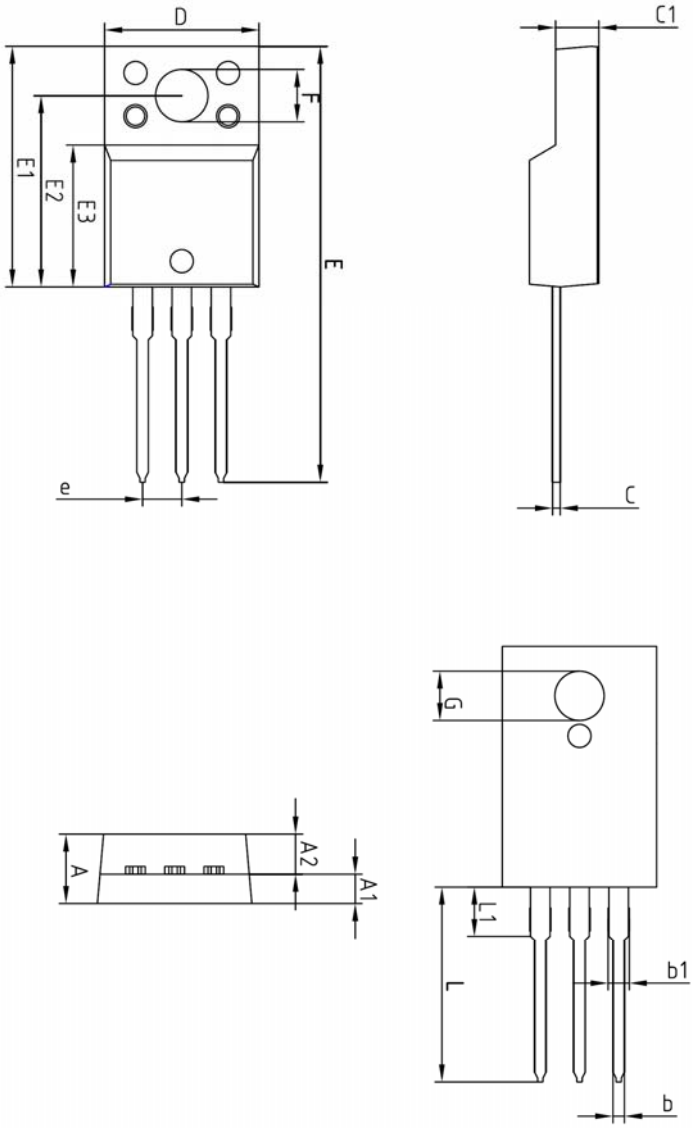








Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			

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Specifications mentioned in this publication are subject to change without notice.

AUK Semiconductor

SMK0465F

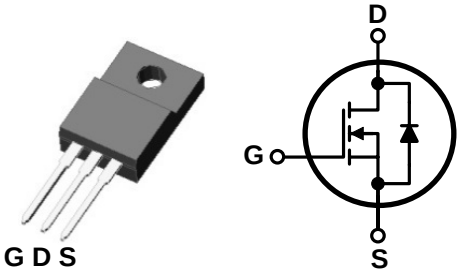
Advanced N-Ch Power MOSFET

SWITCHING REGULATOR APPLICATIONS

Features

- High Voltage: BV_{DSS}=600V(Min.)
- Low C_{rss} : C_{rss}=5.8pF(Typ.)
- Low gate charge : Qg=13nC(Typ.)
- Low $R_{DS(on)}$:$R_{DS(on)}$=2.5Ω(Max.)

PIN Connection



TO-220F-3L

Ordering Information

Type No.	Marking	Package Code
SMK0465F	SMK0465	TO-220F-3L

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

Characteristic	Symbol		Rating	Unit
Drain-source voltage	V_{DSS}		650	V
Gate-source voltage	V_{GSS}		±30	V
Drain current (DC)	I_D	(Tc=25℃)	4	A
		(Tc=100℃)	2.0	A
Drain current (Pulsed) *	I_{DM}		16	A
Drain Power dissipation	P_D		30	W
Avalanche current (Single) ②	I_{AS}		4	A
Single pulsed avalanche energy ②	E_{AS}		81.5	mJ
Avalanche current (Repetitive) ①	I_{AR}		4	A
Repetitive avalanche energy ①	E_{AR}		3.4	mJ
Junction temperature	T_J		150	°C
Storage temperature range	T_{stg}		-55~150	

* Limited by maximum junction temperature

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	4.16	℃/W
	Junction-ambient	$R_{th(J-a)}$	-	62.5	

Electrical Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=250μA, V_{GS}=0	650	-	-	V
Gate-threshold voltage	$V_{GS(th)}$	I_D=250μA, V_{DS}= V_{GS}	2.0	-	4.0	V
Drain-source leakage current	I_{DSS}	V_{DS}=650V, V_{GS}=0V	-	-	1	μA
Gate-source leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±30V	-	-	±100	nA
Drain-Source on-resistance ④	$R_{DS(ON)}$	V_{GS}=10V, I_D=2.0A	-	2.4	3.0	Ω
Forward transfer admittance ④	g_{fs}	V_{DS}=10V, I_D=2.0A	-	4.0	-	S
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V, f=1MHz	-	609	761	pF
Output capacitance	Coss		-	50.4	63.0	
Reverse transfer capacitance	Crss		-	5.3	6.7	
Turn-on delay time	$t_{d(on)}$	V_{DD}=300V, I_D=4A R_G=25Ω ③④	-	10	-	ns
Rise time	t_r		-	42	-	
Turn-off delay time	$t_{d(off)}$		-	38	-	
Fall time	t_f		-	46	-	
Total gate charge	Q_g	V_{DS}=480V, V_{GS}=10V I_D=4A ③④	-	13	17	nC
Gate-source charge	Q_{gs}		-	4	-	
Gate-drain charge	Q_{gd}		-	3	-	

Source-Drain Diode Ratings and Characteristics (T_C=25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Continuous source current	I_S	Integral reverse diode in the MOSFET	-	-	4	A
Source current (Pulsed) ①	I_{SM}		-	-	16	
Forward voltage ④	V_{SD}	V_{GS}=0V, I_S=4A	-	-	1.4	V
Reverse recovery time	t_{rr}	I_s=4A di_s/dt=100A/us	-	300	-	ns
Reverse recovery charge	Q_{rr}		-	2.2	-	uC

Note ;

① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature

② L=9.4mH, I_{AS}=4A, V_{DD}=50V, R_G=27Ω , Starting T_J = 25℃

③ Pulse Test : Pulse Width < 300us, Duty cycle≤ 2%

④ Essentially independent of operating temperature

Electrical Characteristic Curves

Fig. 1 I_D - V_{DS}

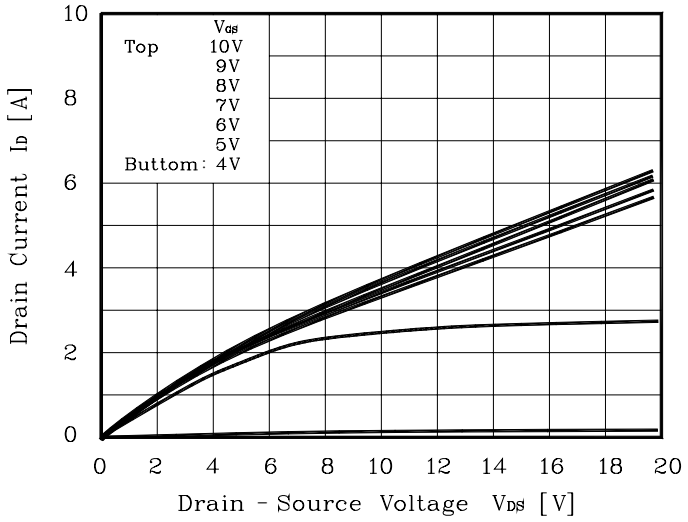


Fig. 2 I_D - V_{GS}

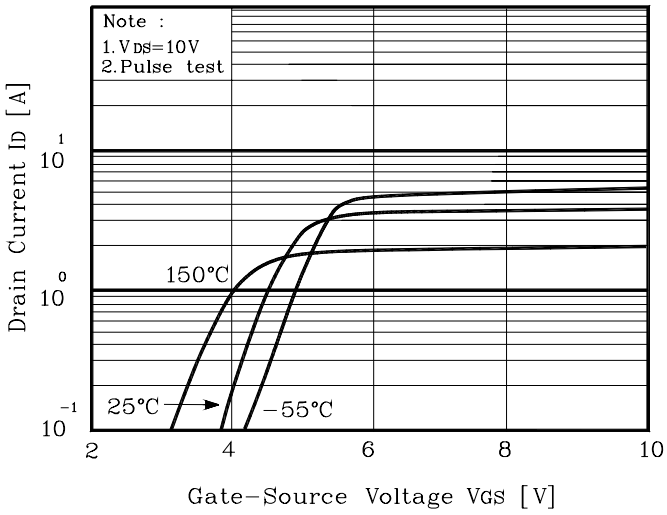


Fig. 3 $R_{DS(on)}$ - I_D

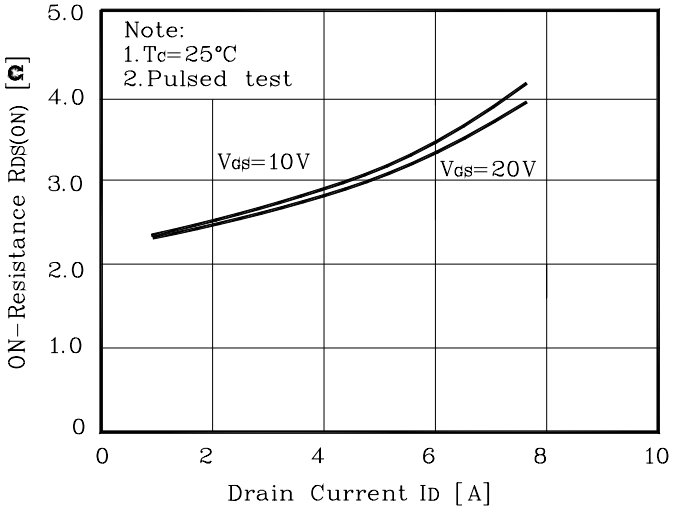


Fig. 4 I_S - V_{SD}

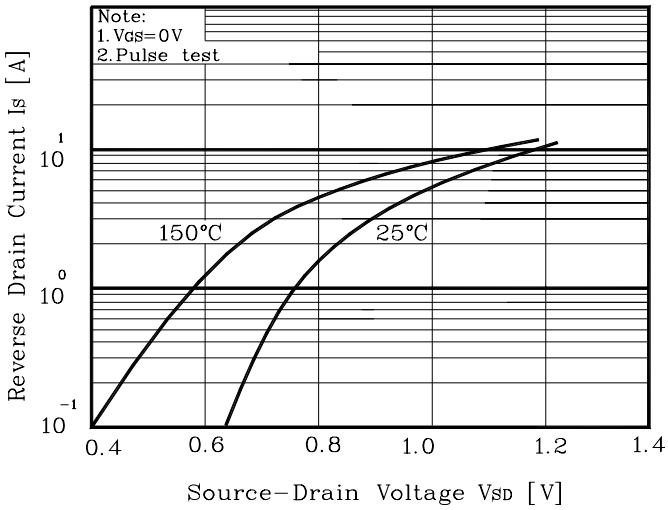


Fig. 5 Capacitance - V_{DS}

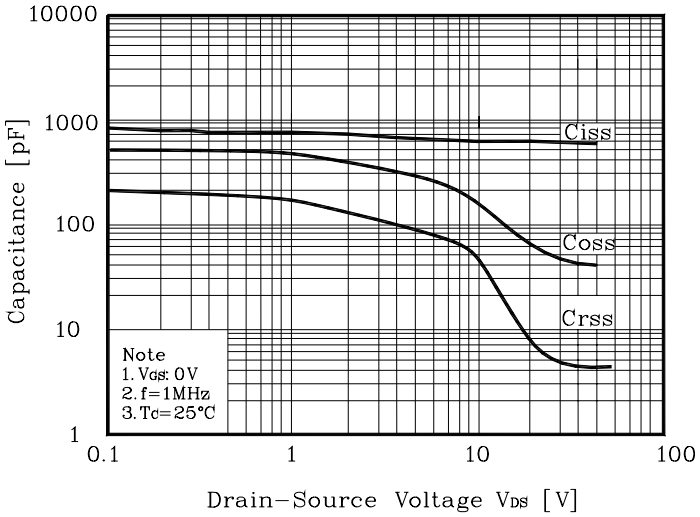
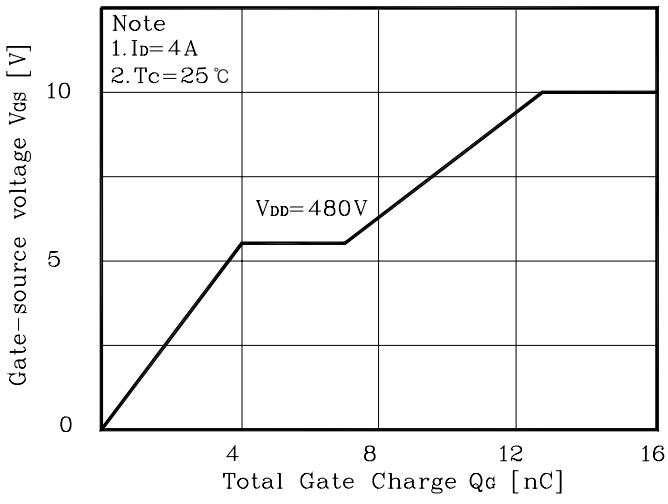


Fig. 6 V_{GS} - Q_G



Electrical Characteristic Curves

Fig. 7 V_{DSS} - T_J

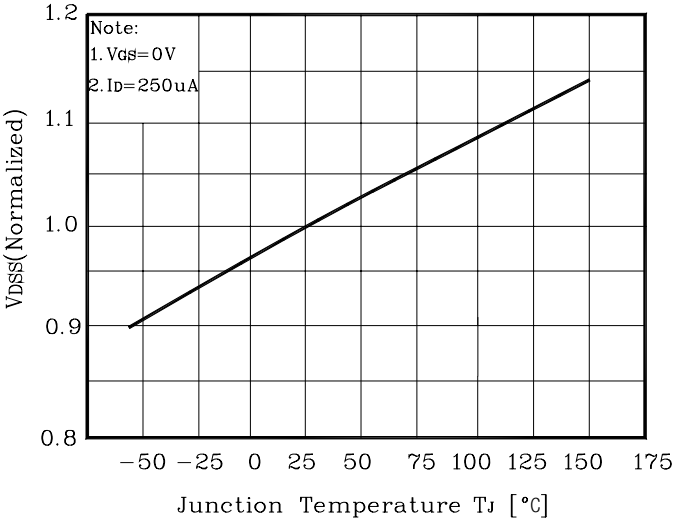


Fig. 8 $R_{DS(on)}$ - T_J

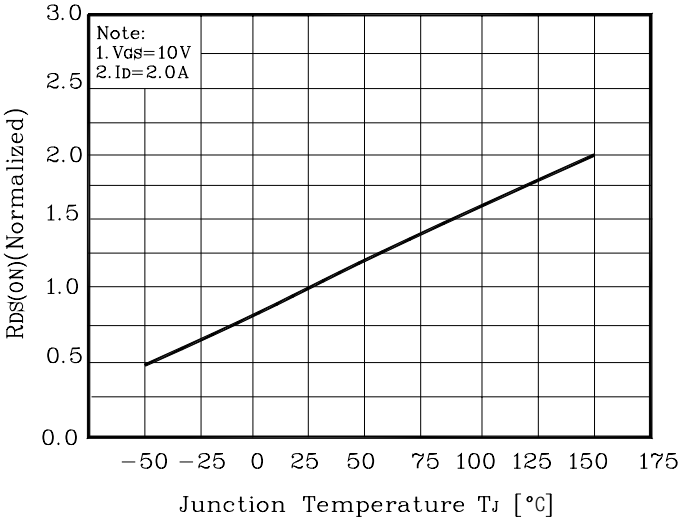


Fig. 9 I_D - T_C

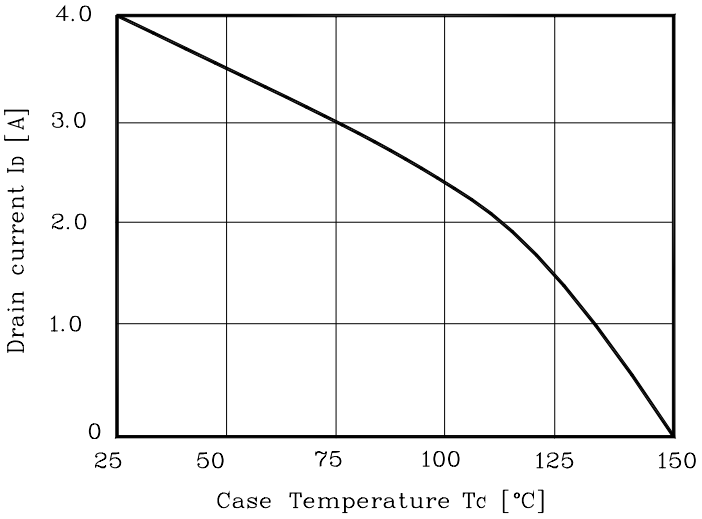


Fig. 10 Safe Operating Area

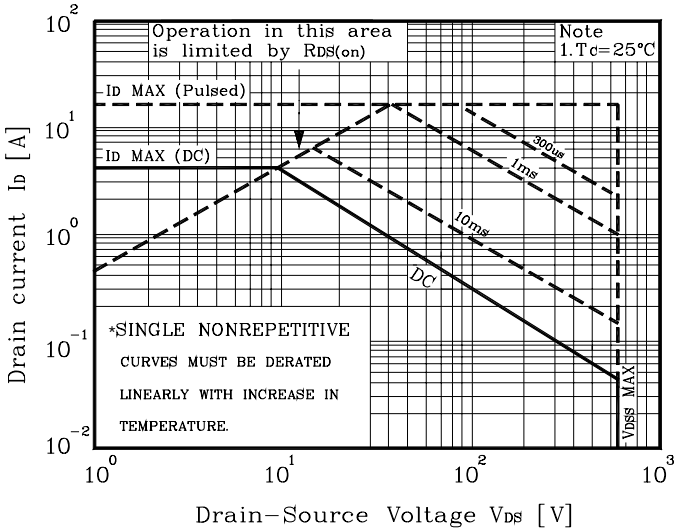


Fig. 11 Gate Charge Test Circuit & Waveform

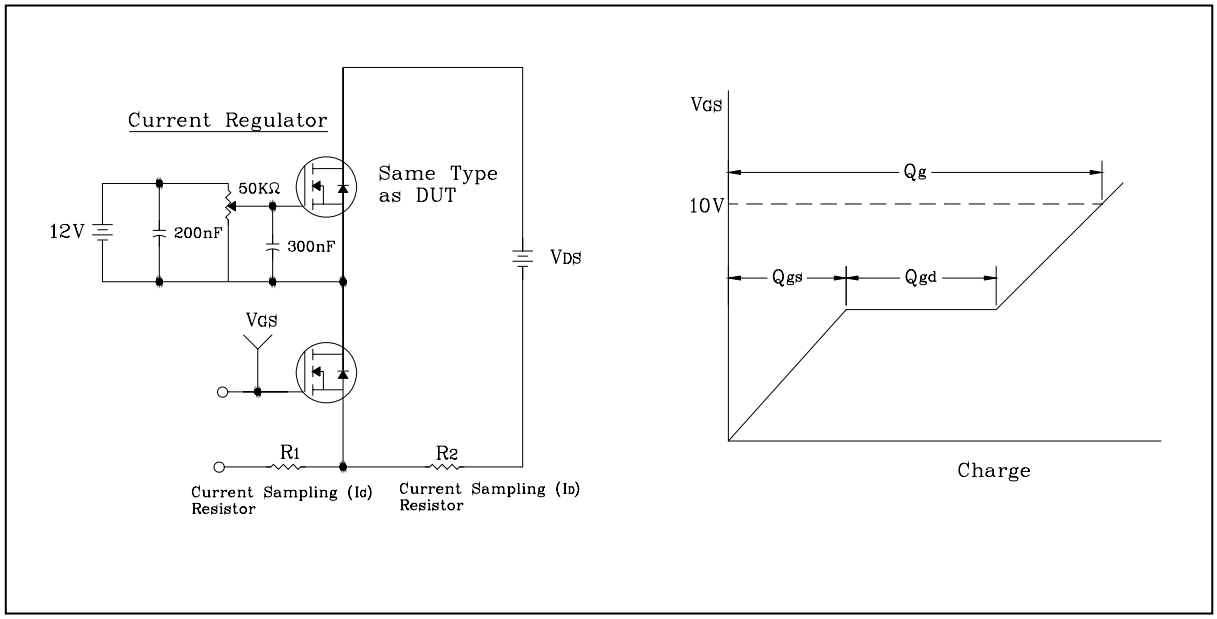


Fig. 12 Resistive Switching Test Circuit & Waveform

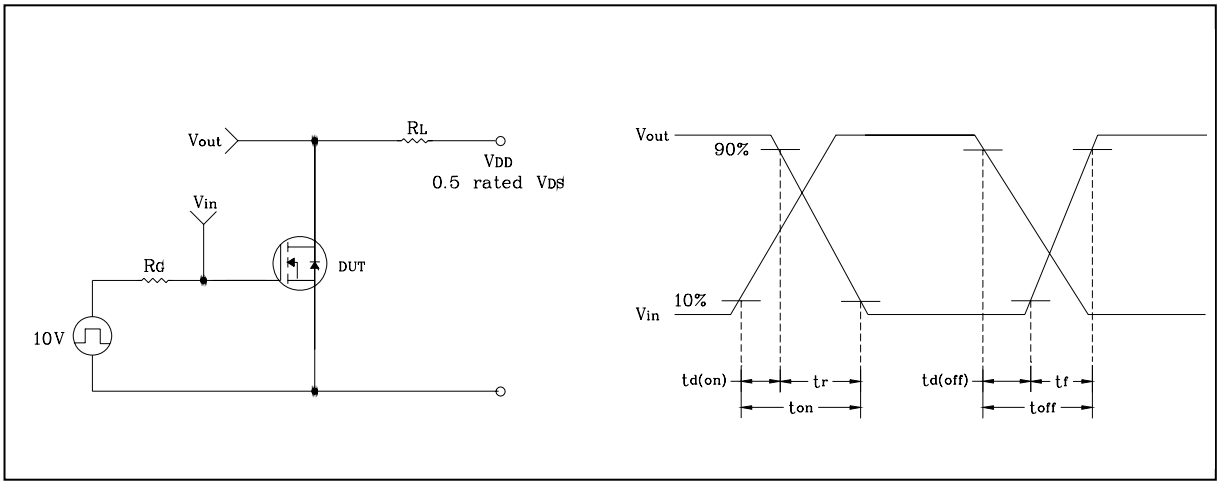


Fig. 13 E_{AS} Test Circuit & Waveform

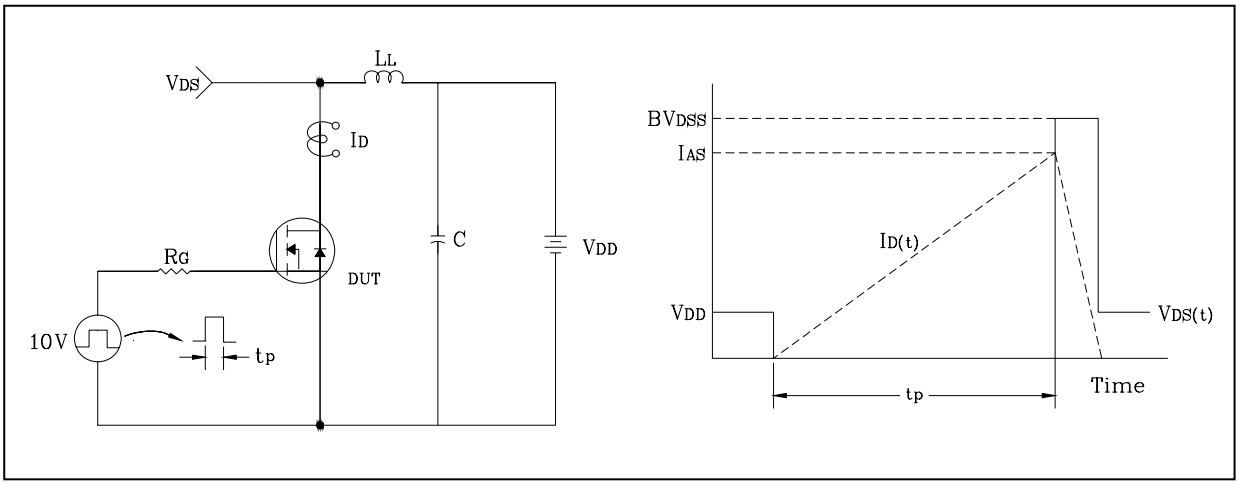
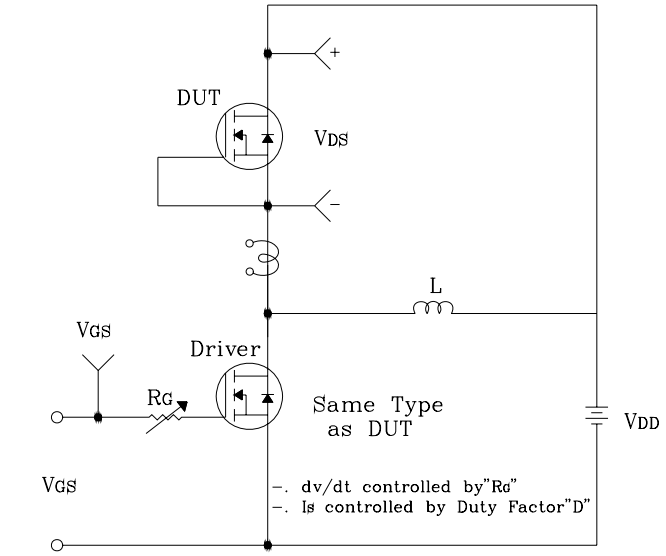
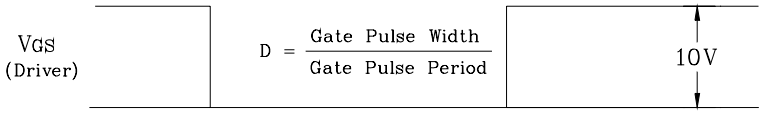
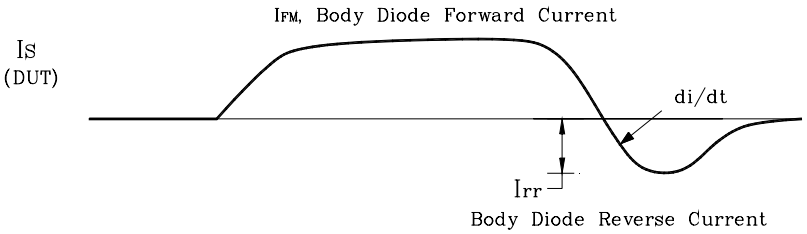
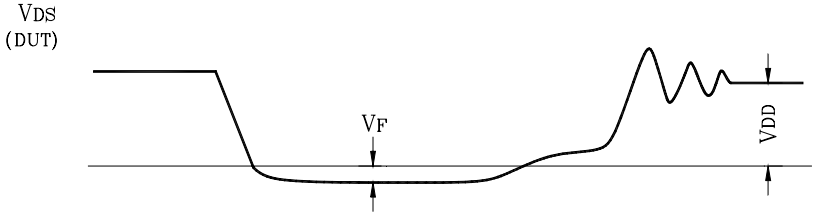


Fig. 14 Diode Reverse Recovery Time Test Circuit & Waveform

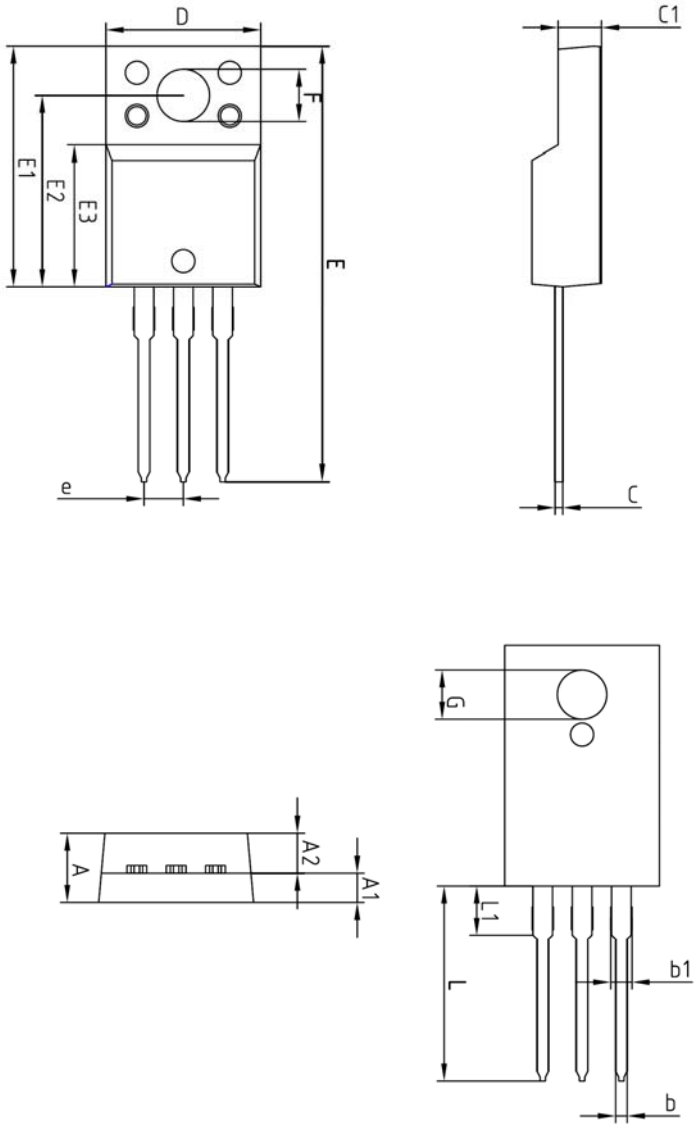








Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			

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AUK Semiconductor

SMK0760F

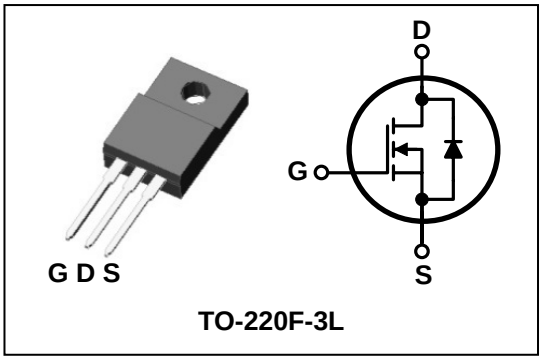
Advanced Power MOSFET

SWITCHING REGULATOR APPLICATIONS

Features

- High Voltage: BV_{DSS}=600V(Min.)
- Low C_{rss} : C_{rss}=9.7pF(Typ.)
- Low gate charge : Qg=23nC(Typ.)
- Low $R_{DS(on)}$:$R_{DS(on)}$=1.2Ω(Max.)

PIN Connection



TO-220F-3L

Ordering Information

Type No.	Marking	Package Code
SMK0760F	SMK0760	TO-220F-3L

Absolute maximum ratings

(Tc=25°C)

Characteristic	Symbol		Rating	Unit
Drain-source voltage	V_{DSS}		600	V
Gate-source voltage	V_{GSS}		±30	V
Drain current (DC) *	I_D	(Tc=25℃)	7	A
		(Tc=100℃)	3.16	A
Drain current (Pulsed) *	I_{DM}		28	A
Drain power dissipation	P_D		30	W
Avalanche current (Single) ②	I_{AS}		7	A
Single pulsed avalanche energy ②	E_{AS}		325	mJ
Avalanche current (Repetitive) ①	I_{AR}		7	A
Repetitive avalanche energy ①	E_{AR}		21.7	mJ
Junction temperature	T_J		150	°C
Storage temperature range	T_{stg}		-55~150	

* Limited by maximum junction temperature

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	4.16	℃/W
	Junction-ambient	$R_{th(J-a)}$	-	62.5	

Electrical Characteristics (Tc=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=250μA, V_{GS}=0	600	-	-	V
Gate threshold voltage	$V_{GS(th)}$	I_D=250μA, V_{DS}= V_{GS}	2.0	-	4.0	V
Drain-source cut-off current	I_{DSS}	V_{DS}=600V, V_{GS}=0V	-	-	1	μA
Gate leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V	-	-	±100	nA
Drain-source on-resistance ④	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.5A	-	1.0	1.2	Ω
Forward transfer conductance ④	g_{fs}	V_{DS}=10V, I_D=3.5A	-	7.3	-	S
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=25V f=1MHz	-	968	1290	pF
Output capacitance	Coss		-	105	140	
Reverse transfer capacitance	Crss		-	9.7	12.9	
Turn-on delay time	$t_{d(on)}$	V_{DD}=325V, I_D=7A R_G=25Ω ③④	-	18	-	ns
Rise time	t_r		-	19	-	
Turn-off delay time	$t_{d(off)}$		-	72	-	
Fall time	t_f		-	28	-	
Total gate charge	Q_g	V_{DS}=325V, V_{GS}=10V I_D=7A ③④	-	23	42	nC
Gate-source charge	Q_{gs}		-	5.5	-	
Gate-drain charge	Q_{gd}		-	9	-	

Source-Drain Diode Ratings and Characteristics (Tc=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Source current (DC)	I_S	Integral reverse diode in the MOSFET	-	-	7	A
Source current (Pulsed) ①	I_{SM}		-	-	28	
Forward voltage ④	V_{SD}	V_{GS}=0V, I_S=7A	-	-	1.4	V
Reverse recovery time	t_{rr}	I_s=7A, V_{GS}=0, di_S/dt=100A/ us	-	365	-	ns
Reverse recovery charge	Q_{rr}		-	3.4	-	uC

Note ;

① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature

② L=12.1mH, I_{AS}=7A, V_{DD}=50V, R_G=27Ω

③ Pulse Test : Pulse Width < 300us, Duty cycle≤ 2%

④ Essentially independent of operating temperature

Electrical Characteristic Curves

Fig. 1 I_D - V_{DS}

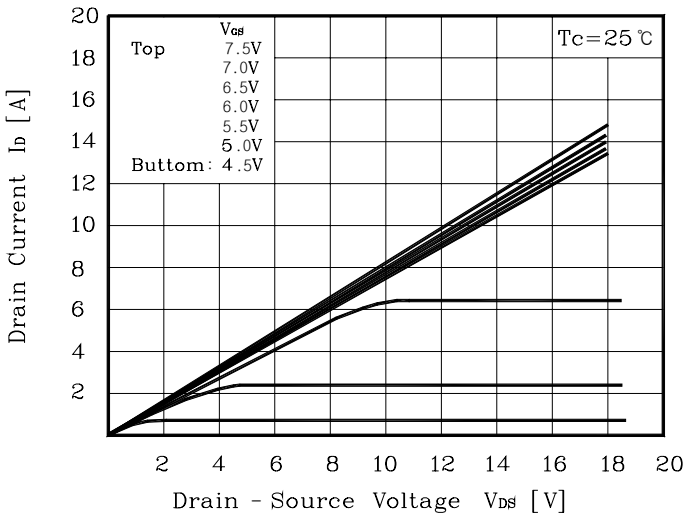


Fig. 2 I_D - V_{GS}

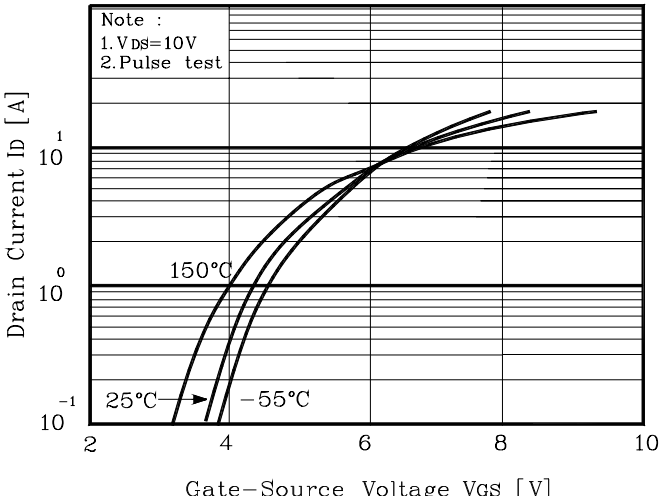


Fig. 3 $R_{DS(on)}$ - I_D

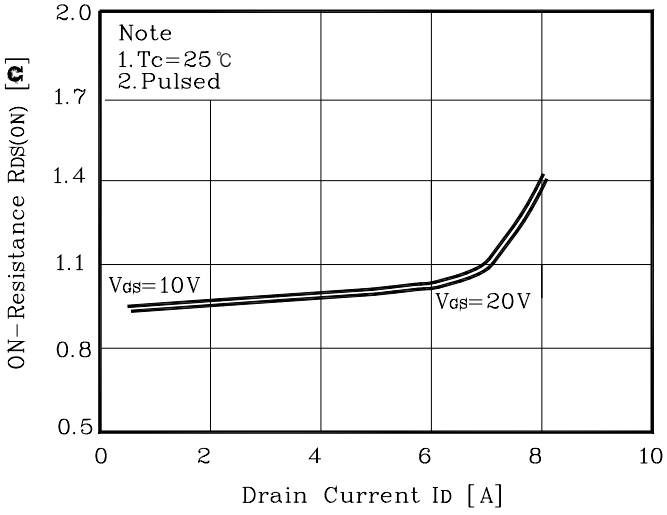


Fig. 4 I_S - V_{SD}

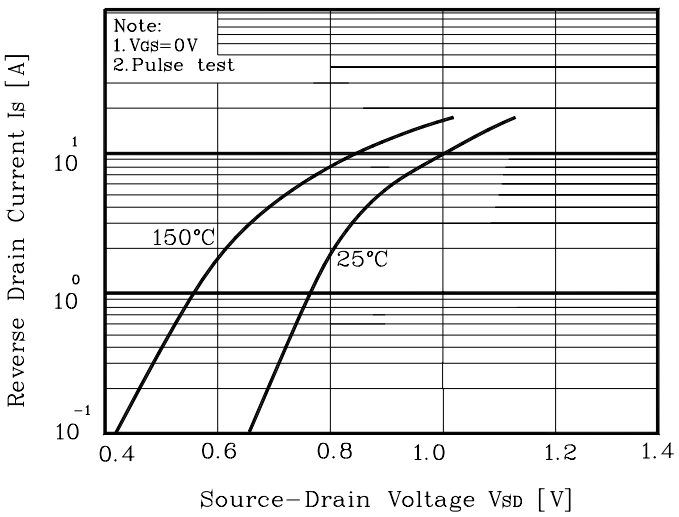


Fig. 5 Capacitance - V_{DS}

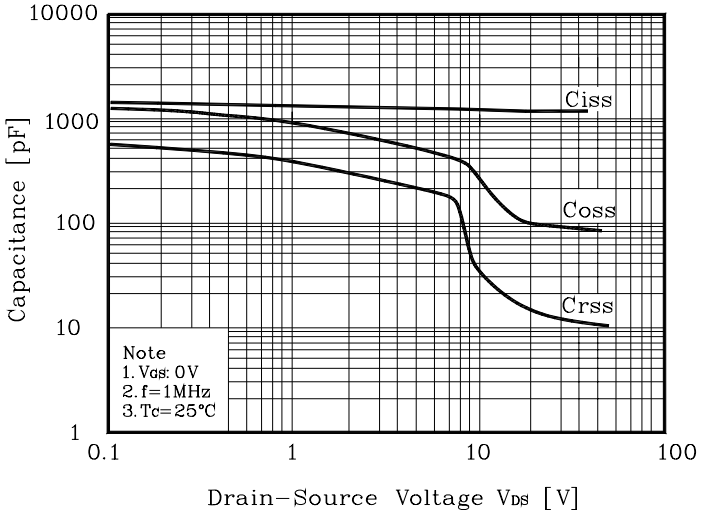
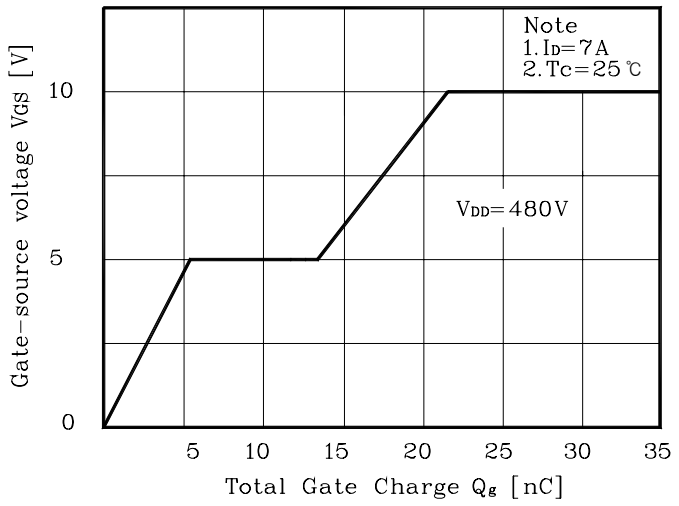


Fig.6 V_{GS} - Q_G



Electrical Characteristic Curves

Fig. 7 V_{DSS} - T_J

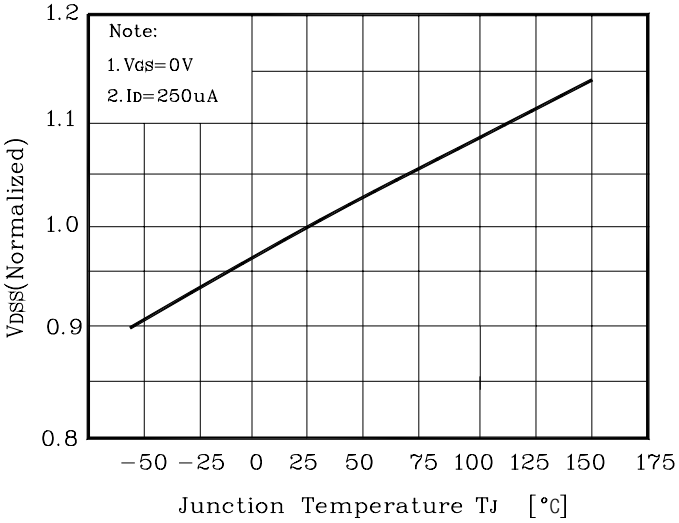


Fig.8 $R_{DS(on)}$ - T_J

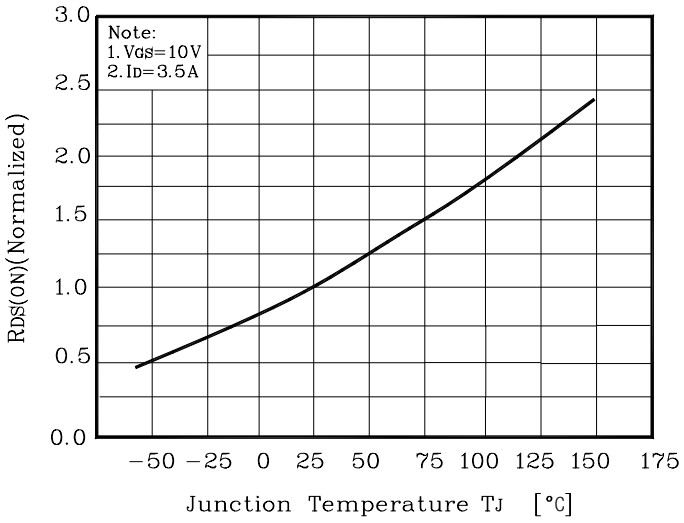


Fig. 9 I_D - T_C

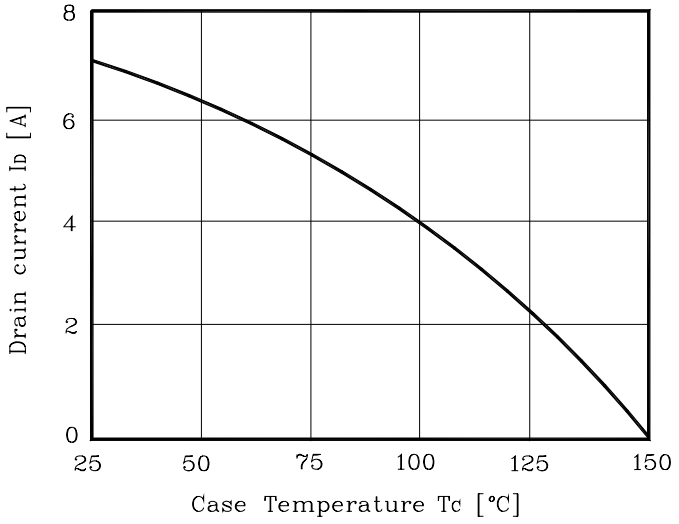


Fig. 10 Safe Operating Area

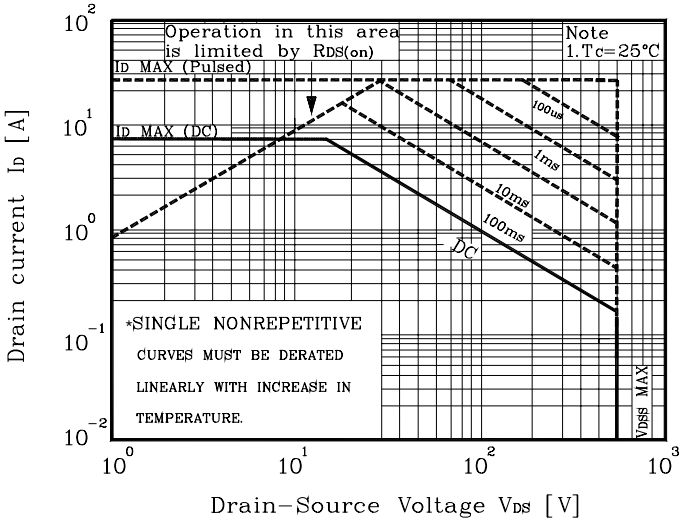


Fig. 10 Gate Charge Test Circuit & Waveform

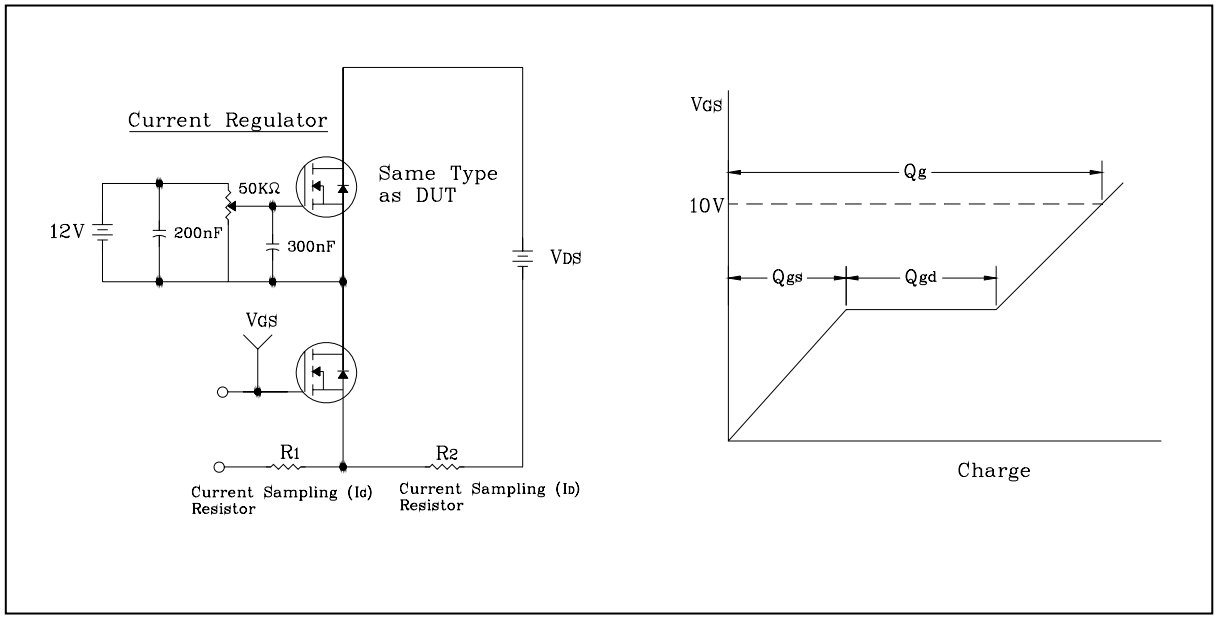


Fig. 11 Resistive Switching Test Circuit & Waveform

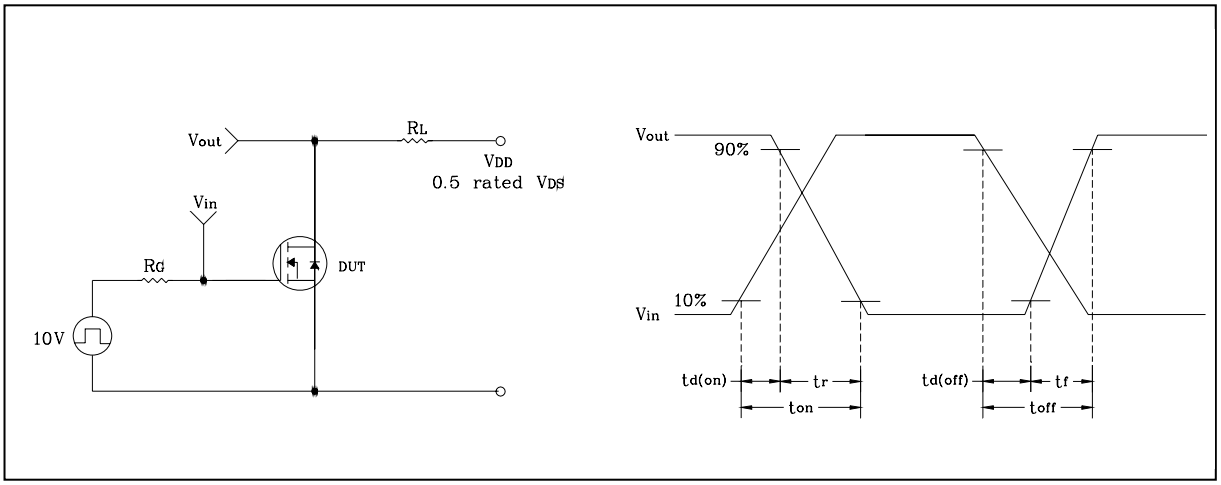


Fig. 12 E_{AS} Test Circuit & Waveform

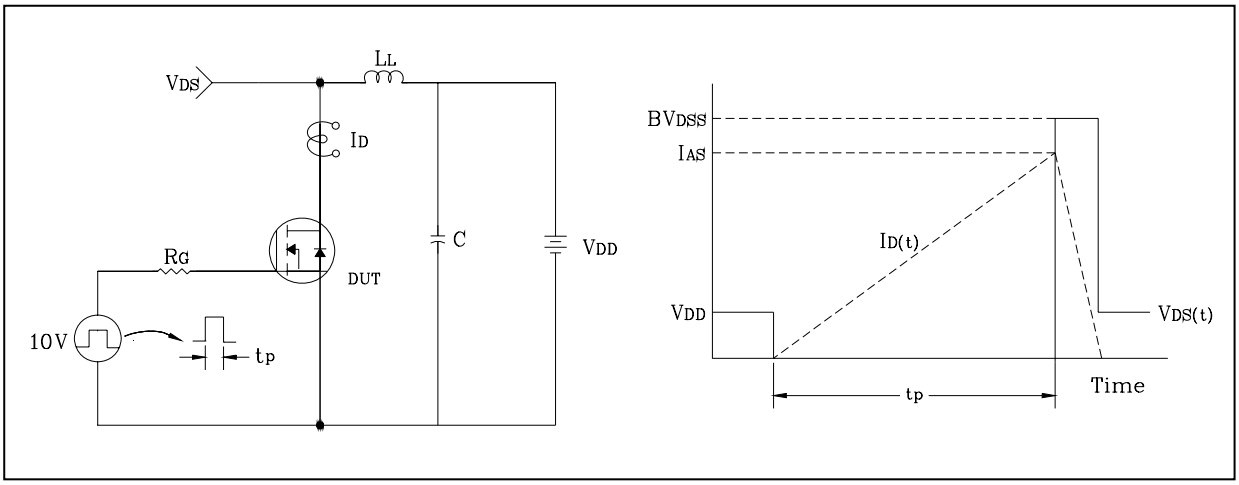
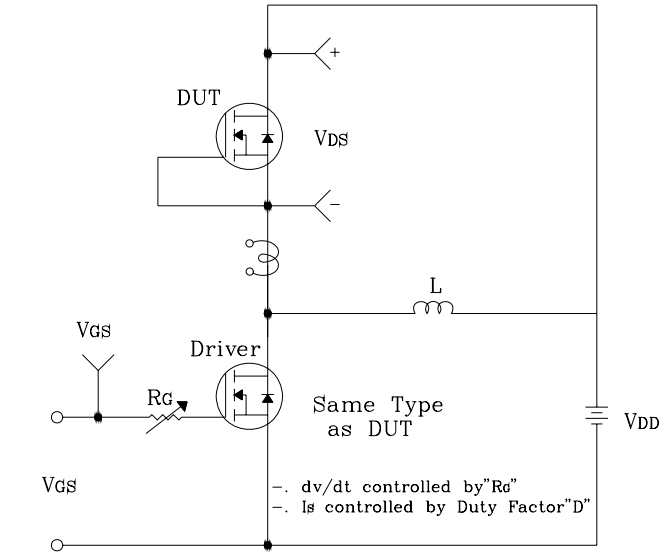
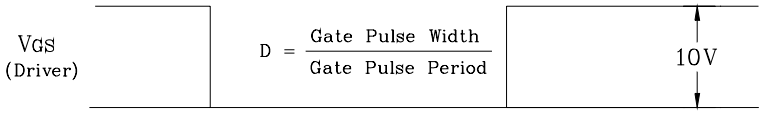
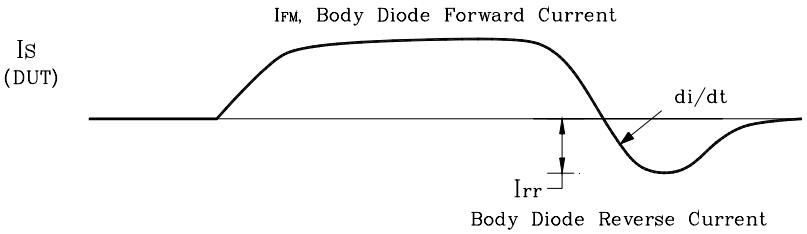
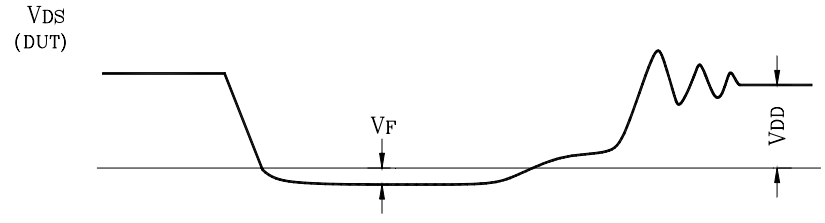


Fig. 13 Diode Reverse Recovery Time Test Circuit & Waveform

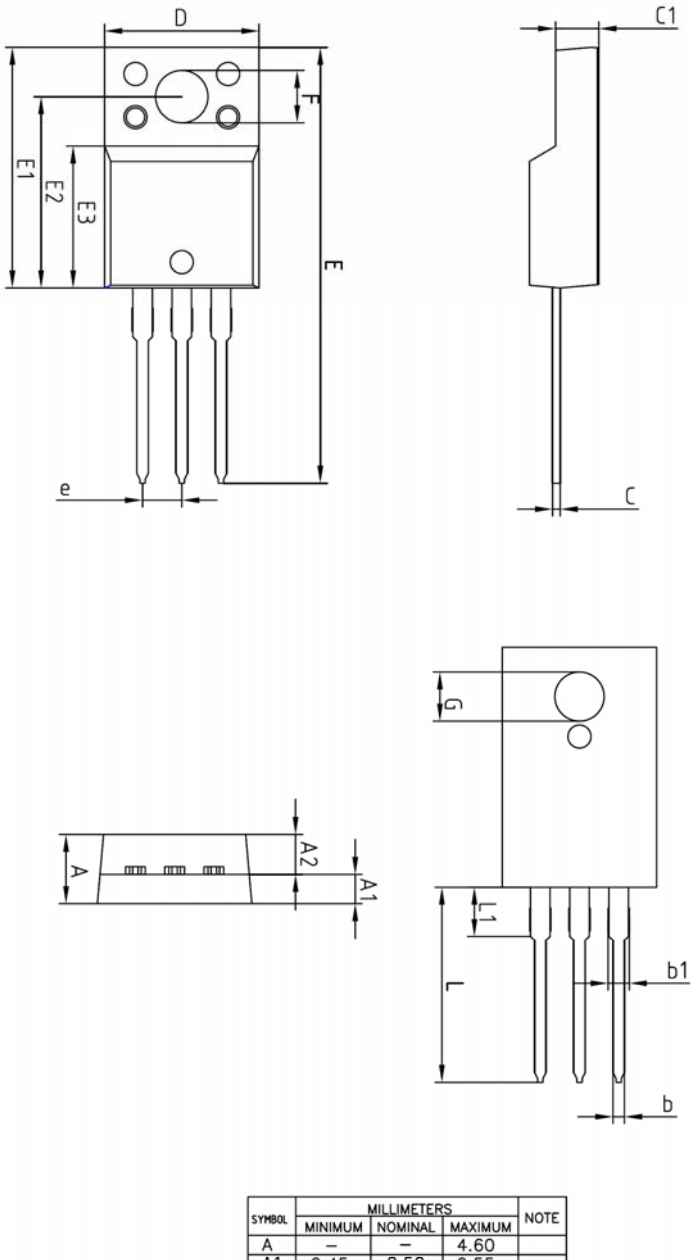








Outline Dimensions



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	–	–	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	–	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	–	13.00	
L1	3.46 BSC			

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