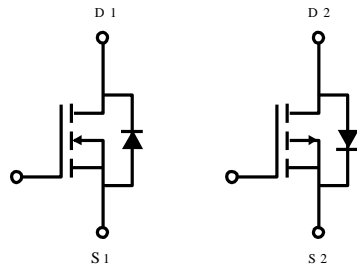
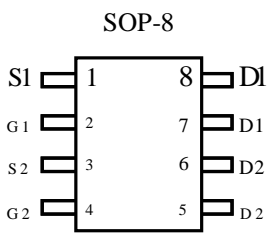


Complementary High Density Trench MOSFET

PRODUCT SUMMARY (N-Channel)		
V _{DS}	I _D	R _{DS(on)} (mΩ) Max
30V	6.5A	28 @ V _{GS} = 10V
	5A	41 @ V _{GS} = 4.5V

PRODUCT SUMMARY (P-Channel)		
V _{DS}	I _D	R _{DS(on)} (mΩ) Max
-30V	-6A	37 @ V _{GS} = -10V
	-5A	57 @ V _{GS} = -4.5V



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

Parameter	Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage	V _{DS}	30	-30	V
Gate-Source Voltage	V _{GS}	± 20	± 20	V
Drain Current-Continuous ^a @ T _A = 25 °C -Pulse ^b	I _D	6.5	-6	A
	I _{DM}	28	-26	A
Drain-Source Diode Forward Current ^a	I _S	2.5	-2.3	A
Maximum Power Dissipation ^a	PD	2.0		W
		1.2		
Operating Junction and Storage Temperature Range	T _J ,T _{SI} G	- 55 to 150		°C

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient ^a	R _{thJA}	62.5	°C/W
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Note :
a. Surface Mounted on FR4 Board , t = 10sec .
b. Pulse width limited by maximum junction temperature.

N-Channel ELECTRICAL CHARACTERISTICS (TA= 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = 250uA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V , V _{GS} = 0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = 20V , V _{DS} = 0V			100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.4	3	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10V , I _D = 6.5A		23	28	m
		V _{GS} = 4.5V , I _D = 5A		34	41	m
Forward Transconductance	g _{fs}	V _{DS} = 5V , I _D = 5A		5.1		S
DRAIN-SOURCE DIODE CHARACTERISTICS^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = 1.0A			1.0	V
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = 15V , V _{GS} = 0V f = 1.0MHz		388		pF
Output Capacitance	C _{OSS}			62		pF
Reverse Transfer Capacitance	C _{RSS}			58		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 15V , I _D = 1A		7.0		ns
Rise Time	t _r	V _{GEN} = 10V		10		ns
Turn-Off Delay Time	t _{D(OFF)}	R _L = 15		16		ns
Fall Time	t _f	R _{GEN} = 6		7.0		ns
Total Gate Charge	Q _g	V _{DS} = 10V		7.0		nC
Gate-Source Charge	Q _{gs}	I _D = 1A		1.6		nC
Gate-Drain Charge	Q _{gd}	V _{GS} = 10V		1.0		nC

Note :

b. Pulse Test : Pulse width 300us , Duty Cycle 2% .

c. Guaranteed by design , not subject to production testing .

P-Channel ELECTRICAL CHARACTERISTICS TA= 25 °C unless otherwise noted

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = -250uA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V , V _{GS} = 0V			-1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = -20V , V _{DS} = 0V			-100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-1	-1.5	-3	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = -10V , I _D = -6A		27	37	m
		V _{GS} = -4.5V , I _D = -5A		39	57	m
Forward Transconductance	g _{fs}	V _{DS} = -10V , I _D = -6A		12.2		S
DRAIN-SOURCE DIODE CHARACTERISTICS^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = -2.3A			-1.2	V
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = -15V , V _{GS} = 0V f = 1.0MHz		926		pF
Output Capacitance	C _{OSS}			119		pF
Reverse Transfer Capacitance	C _{RSS}			97		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -15V , I _D = -3A V _{GEN} = -10V R _L = 5 R _{GEN} = 6		9.2		ns
Rise Time	t _r			5.2		ns
Turn-Off Delay Time	t _{D(OFF)}			41.5		ns
Fall Time	t _f			12.8		ns
Total Gate Charge	Q _g	V _{DS} = -15V I _D = -3A V _{GS} = -10V		18.6		nC
Gate-Source Charge	Q _{gs}			3.5		nC
Gate-Drain Charge	Q _{gd}			2.3		nC

Note :

b. Pulse Test : Pulse width 300us , Duty Cycle 2% .

c. Guaranteed by design , not subject to production testing .

N-Channel:

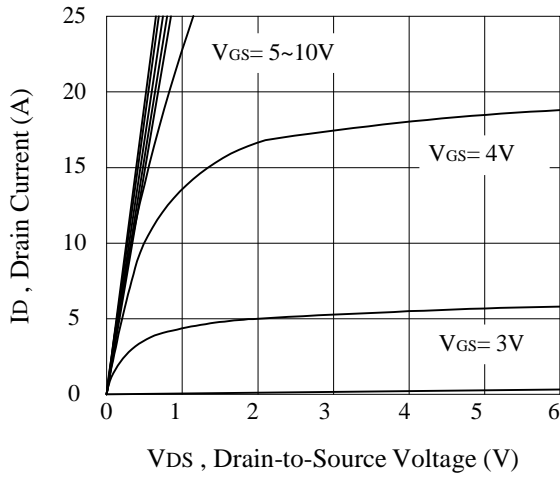


Figure 1. Output Characteristics

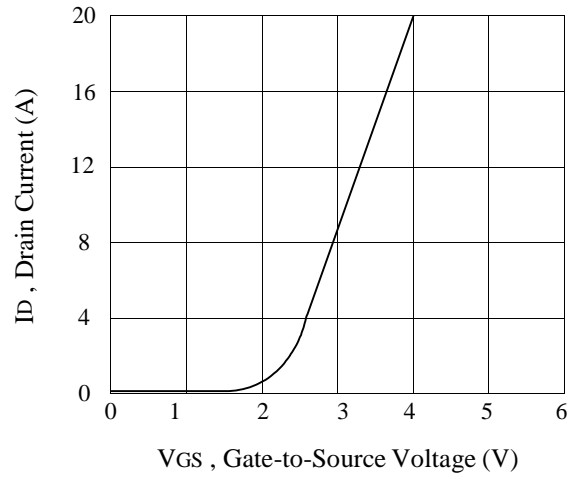


Figure 2. Transfer Characteristics

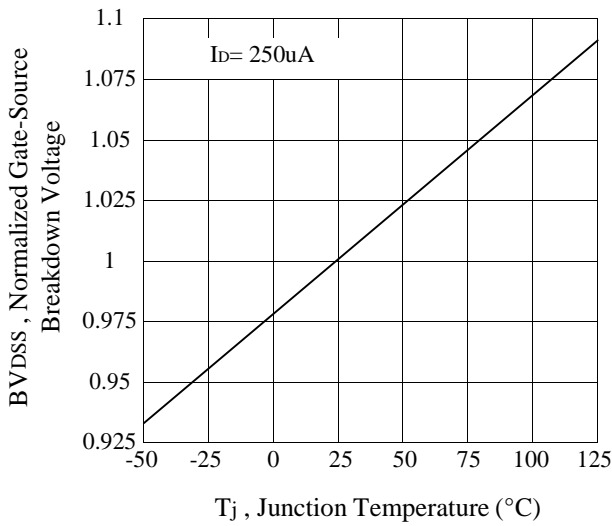


Figure 3. Breakdown Voltage Variation with Temperature

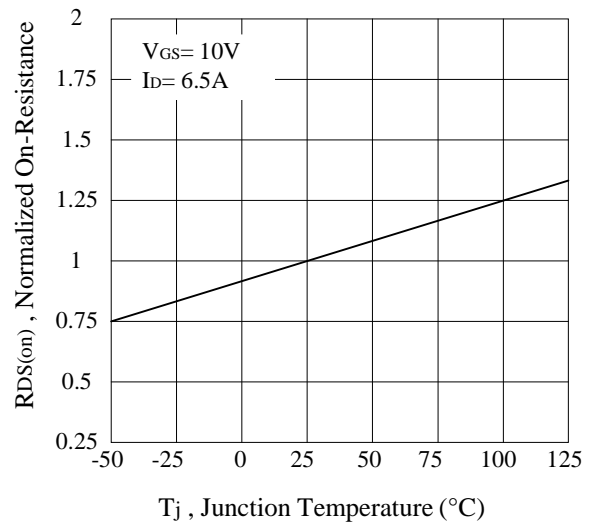


Figure 4. On-Resistance Variation with Temperature

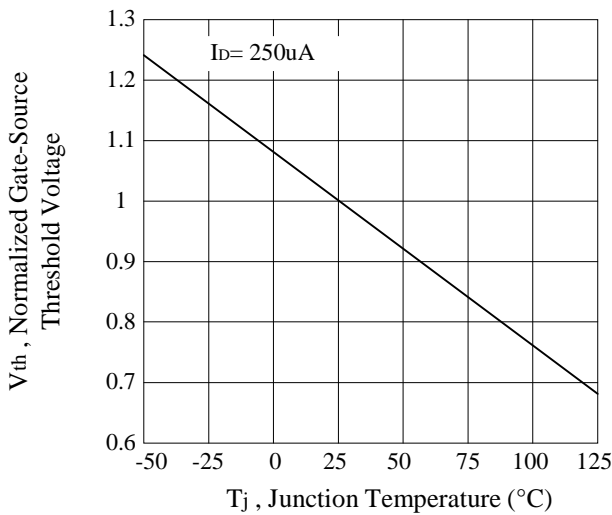


Figure 5. Gate Threshold Variation with Temperature

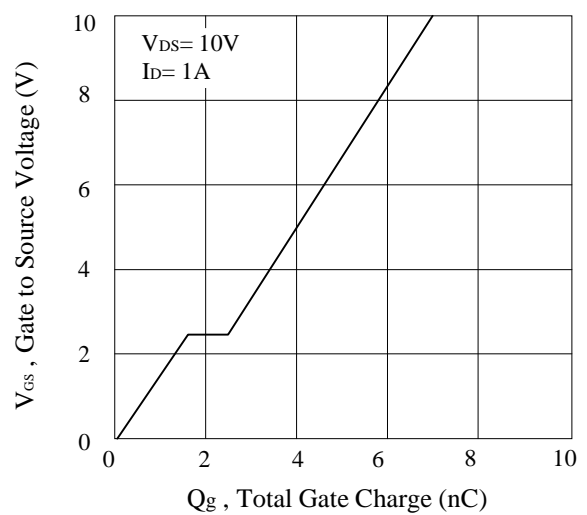
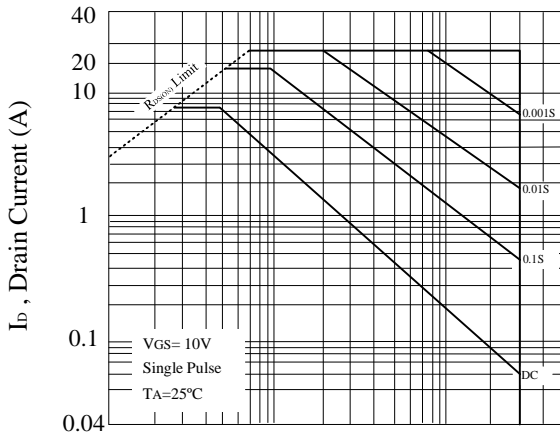
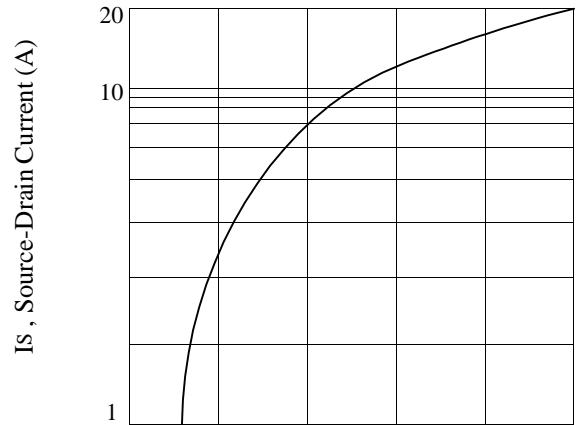


Figure 6. Gate Charge



VDS, Drain-Source Voltage (V)
Figure 7. Maximum Safe Operating Area



VSD, Body Diode Forward Voltage (V)
Figure 8. Body Diode Forward Voltage Variation with Source Current

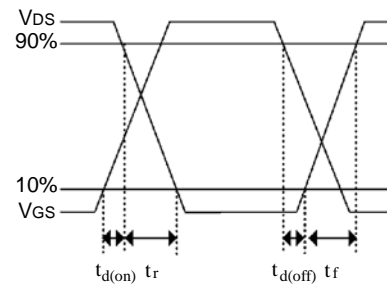
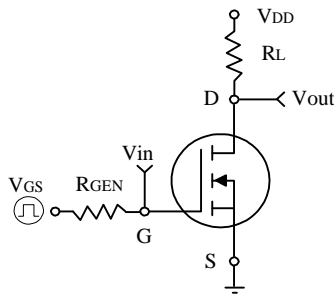
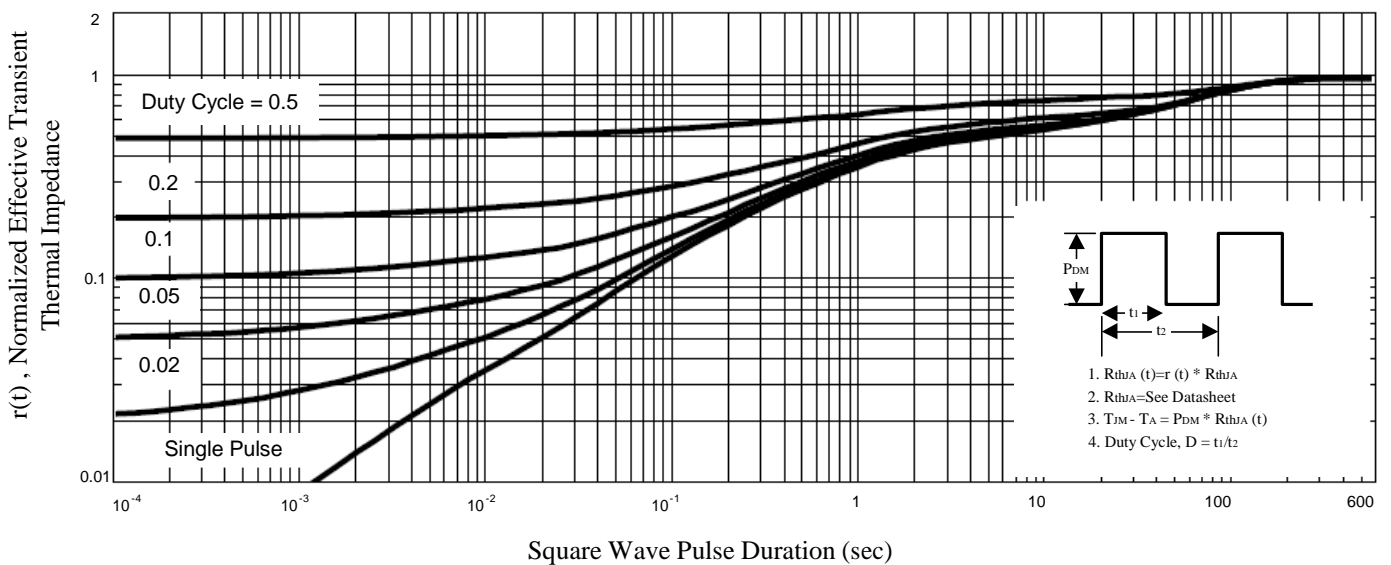


Figure 9. Switching Test Circuit and Switching Waveforms



P-Channel:

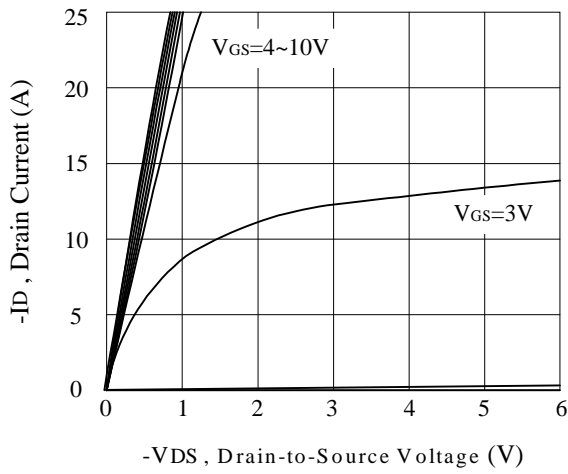


Figure 11. Output Characteristics

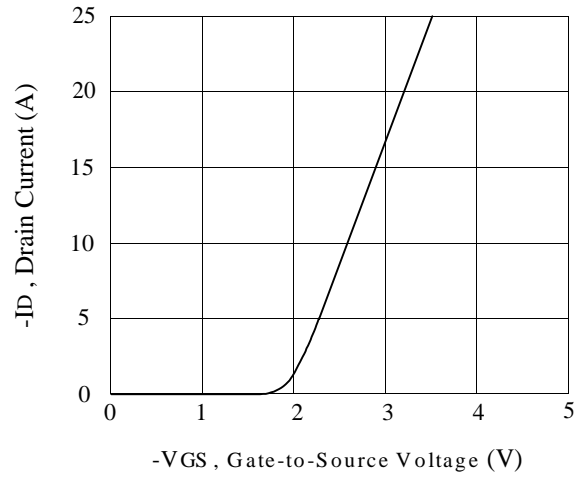


Figure 12. Transfer Characteristics

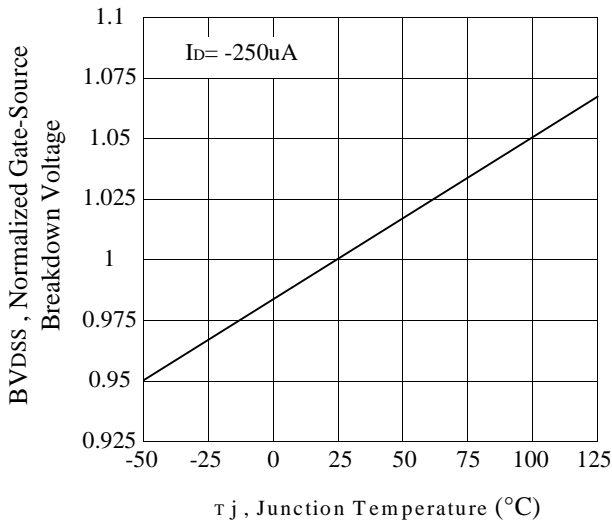


Figure 13. Breakdown Voltage Variation with Temperature

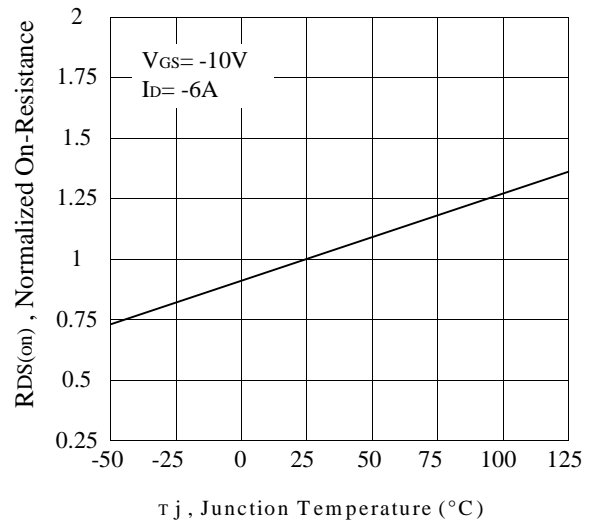
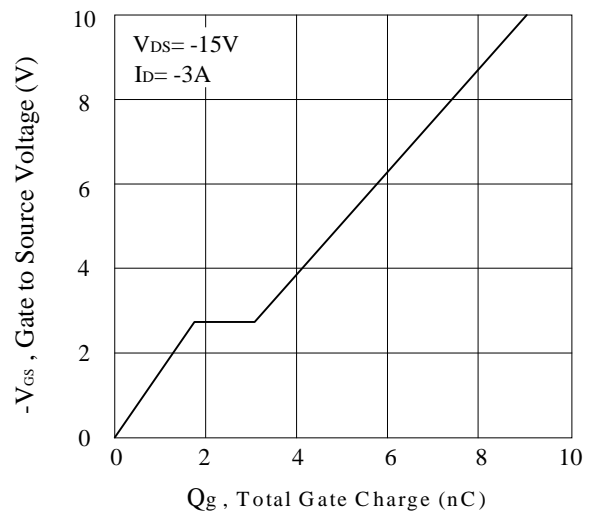
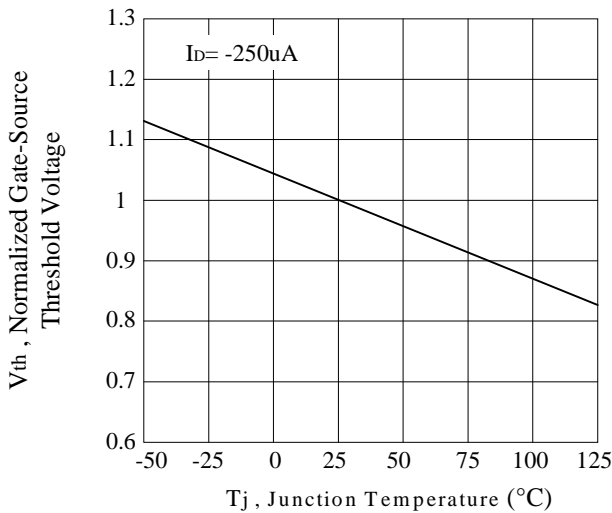
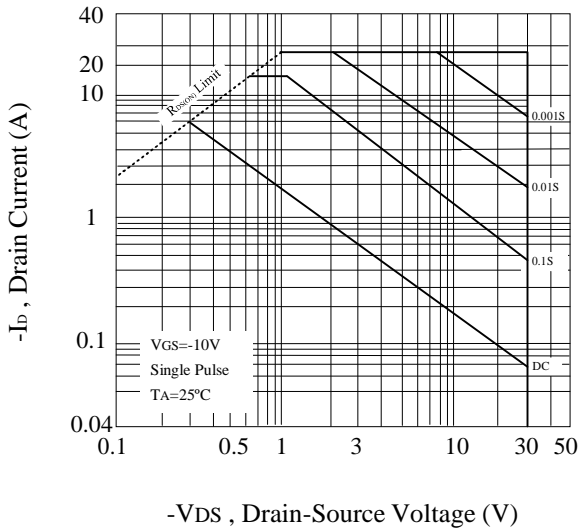
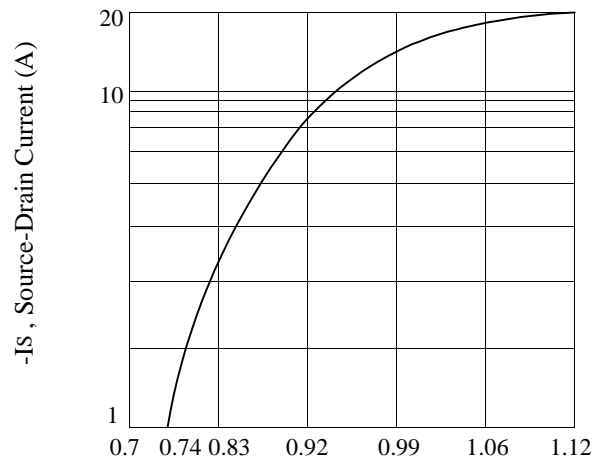


Figure 14. On-Resistance Variation with Temperature





-VDS, Drain-Source Voltage (V)
Figure 17. Maximum Safe Operating Area



-VSD, Body Diode Forward Voltage (V)
Figure 18. Body Diode Forward Voltage Variation with Source Current

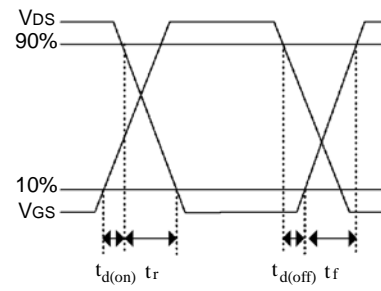
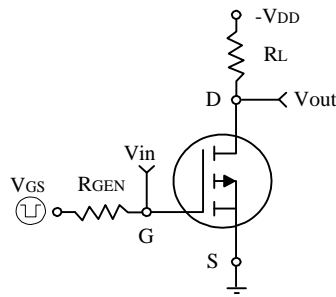


Figure 19. Switching Test Circuit and Switching Waveforms

