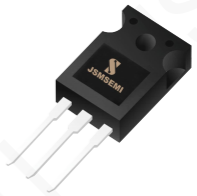
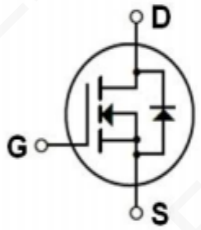
Features：

- 7.0A, 800V, $R_{DS(on)(Typ)}$ =1.4Ω@V_{GS}=10V
- Low Gate Charge
- Low C_{rss}
- 100% Avalanche Tested
- Fast Switching
- Improved dv/dt Capability





Application:

- High Frequency Switching Mode Power Supply
- Active Power Factor Correction

Absolute Maximum Ratings(Tc=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	800	V
I_D	Drain Current - Continuous(Tc=25°C)	7.0*	A
	- Continuous(Tc=100°C)	4.4*	A
I_{DM}	Drain Current -Pulsed (Note1)	28*	A
V_{GSS}	Gate-Source Voltage	±30	V
E_{AS}	Single Pulsed Avalanche Energy (Note2)	590	mJ
I_{AR}	Avalanche Current (Note1)	7.0	A
E_{AR}	Repetitive Avalanche Energy (Note1)	14	mJ
dv/dt	Peak Diode Recovery dv/dt (Note3)	4.3	V/ns
P_D	Power Dissipation(T_C =25°C)	48	W
	-Derate above 25°C	0.38	W/°C
Tj	Operating Junction Temperature	150	°C
Tstg	Storage Temperature Range	-55 to+150	°C

* Drain Current Limited by Maximum Junction Temperature.

Thermal Characteristics

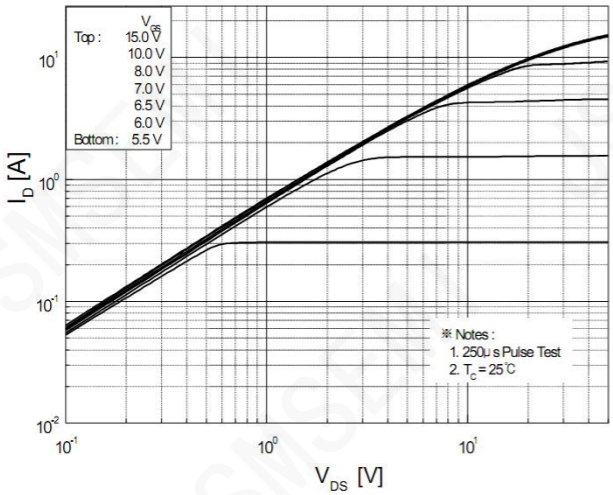
Symbol	Parameter	Max	Unit
$R_{\theta JC}$	Thermal Resistance,Junction to Case	2.6	°C /W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	62.5	°C /W

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

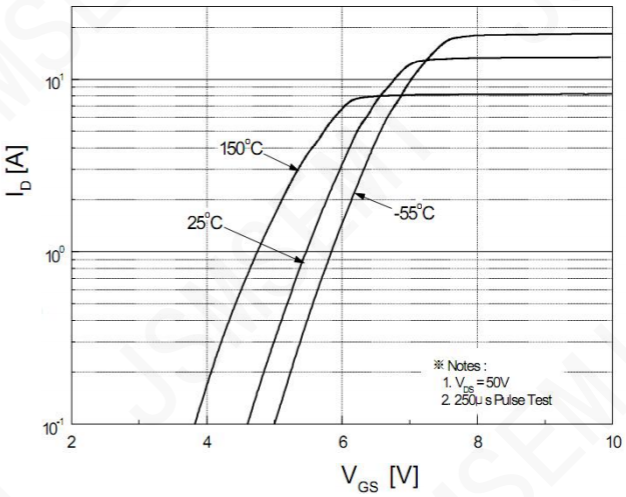
Symbol	Parameter	Test Conditons	Min	Typ	Max	Unit
Off Characteristics						
BV_{DSS}	Drain-source Breakdown Voltage	V_{GS}=0V ,I_D=250μA	800	--	--	V
$\triangle BV_{DSS}$ /$\triangle T_J$	Breakdown Voltage Temperature Coefficient	I_D=250μA (Referenced to 25°C)	--	0.93	--	V/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=800V,V_{GS}=0V	--	--	1	μA
		V_{DS}=640V,Tc=125°C	--	--	10	μA
I_{GSSF}	Gate-Body Leakage Current,Forward	V_{GS}=+30V, V_{DS}=0V	--	--	100	nA
I_{GSSR}	Gate-Body Leakage Current,Reverse	V_{GS}=-30V, V_{DS}=0V	--	--	-100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	2.0	--	4.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS}=10 V, I_D=3.5A	--	1.4	1.7	Ω
g_{FS}	Forward Transconductance	V_{DS}=40 V, I_D=3.5A (Note4)	--	4.7	--	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V,V_{GS}=0V, f=1.0MHz	--	1290	--	pF
C_{oss}	Output Capacitance		--	120	--	pF
C_{rss}	Reverse Transfer Capacitance		--	10	--	pF
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 400 V, I_D = 7.0 A, R_G = 25 Ω (Note4,5)	--	35	--	ns
t_r	Turn-On Rise Time		--	100	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	50	--	ns
t_f	Turn-Off Fall Time		--	60	--	ns
Q_g	Total Gate Charge	V_{DS} = 640 V, I_D =7.0 A, V_{GS} = 10 V (Note4,5)	--	27	--	nC
Q_{gs}	Gate-Source Charge		--	8.2	--	nC
Q_{gd}	Gate-Drain Charge		--	11	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain-Source Diode Forward Current		--	--	7.0	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	28	A
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} =0V,I_S=7.0A	--	--	1.4	V
t_{rr}	Reverse Recovery Time	V_{GS} =0V, I_S=7.0A, d I_F /dt=100A/μs (Note4)	--	650	--	ns
Q_{rr}	Reverse Recovery Charge		--	7.0	--	μC

Notes:
1、Repetitive Rating:Pulse Width Limited by Maximum Junction Temperature.
2、L = 25mH, I_{AS} =7.0A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25°C.
3、I_{SD}≤7.0A, di/dt≤200A/μs, V_{DD}≤BV_{DSS}, Starting T_J = 25°C.
4、Pulse Test : Pulse Width ≤300 μ s, Duty Cycle≤2%.
5、Essentially Independent of Operating Temperature.

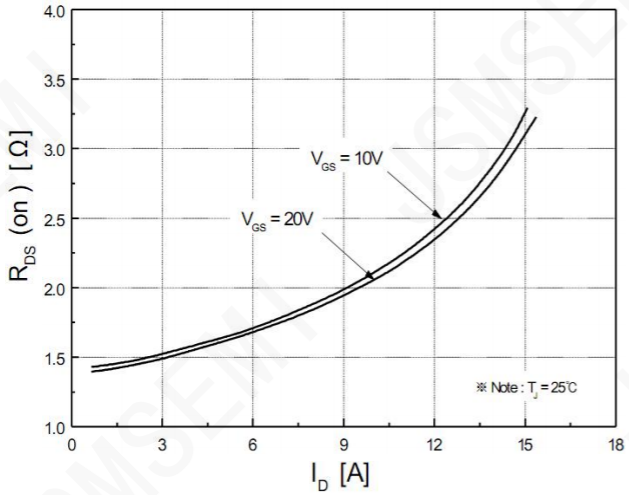
On-Regin Characteristics



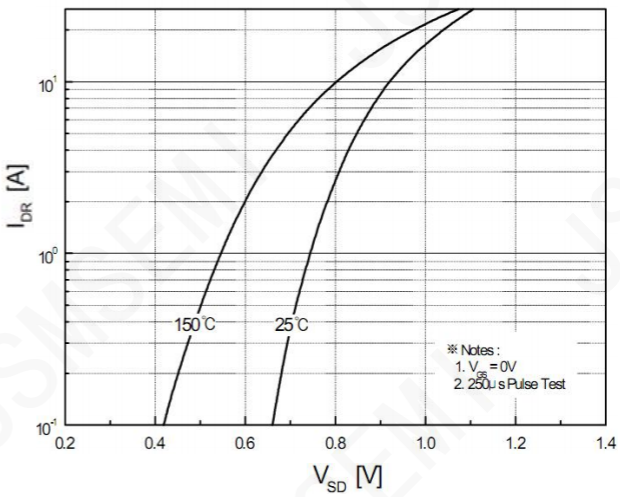
Transfer Characteristics



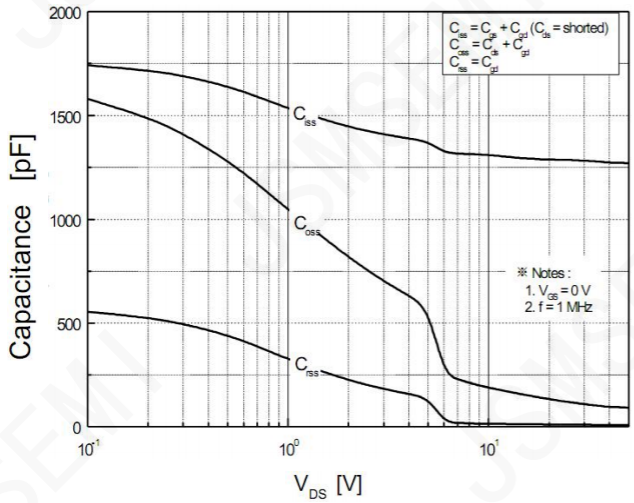
On-Resistance Variation vs. Drain Current and Gate Voltage



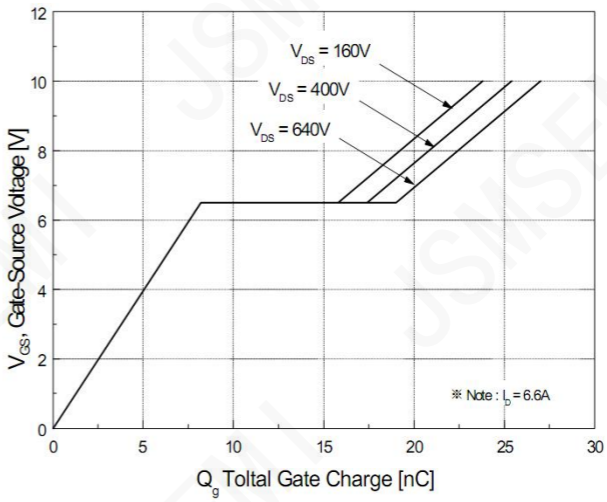
Body Diode Forward Voltage Variation vs. Source Current and Temperature



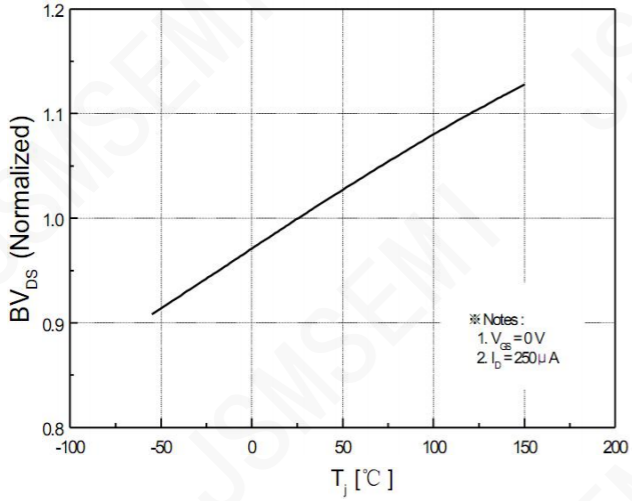
Capacitance Characteristics



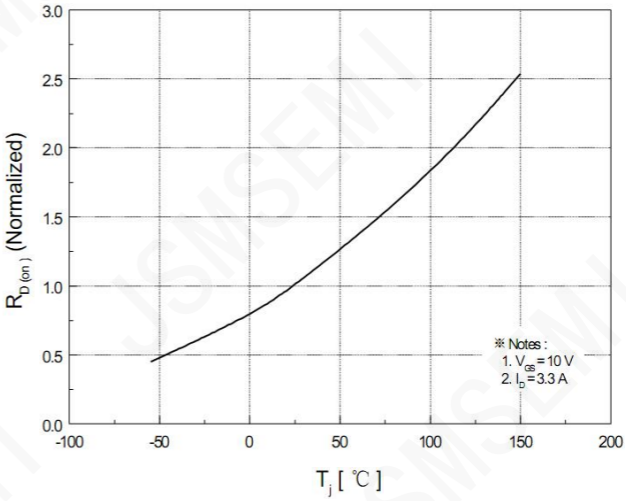
Gate Charge Characteristics



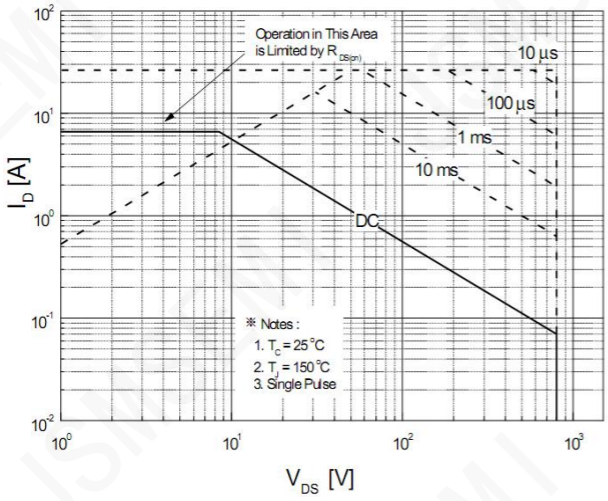
Breakdown Voltage Variation vs. Temperature



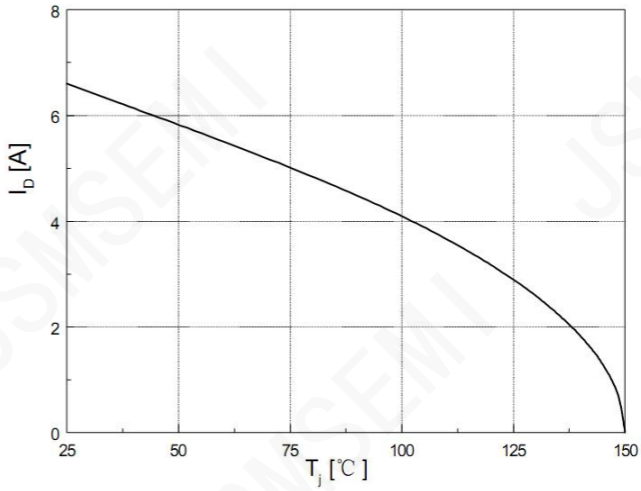
On-Resistance Variation vs. Temperature



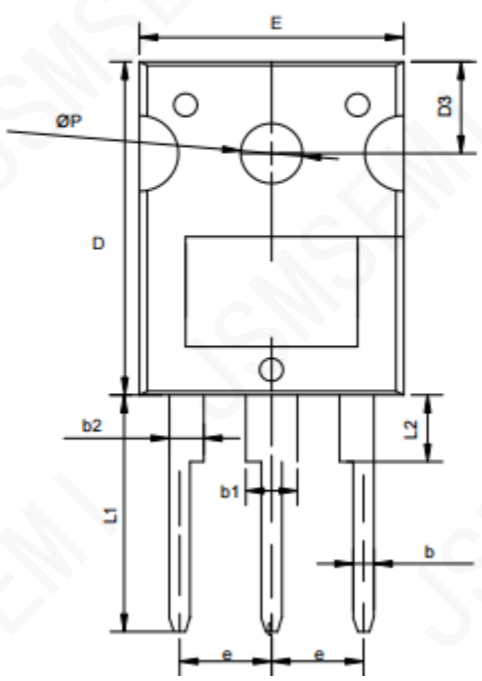
Maximum Safe Operating Area

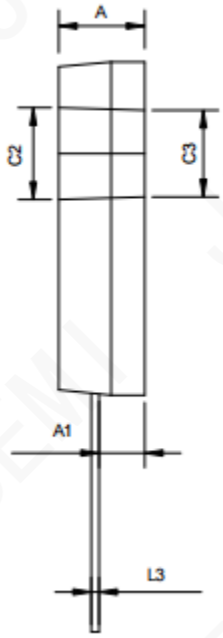


Maximum Drain Current Vs. Case Temperature



TO-247 Package Dimensions





SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.30	2.50	2.70
b	1.10	1.20	1.30
b1	2.90	3.10	3.30
b2	1.90	2.10	2.30
c2	5.50	6.00	6.50
c3	4.95	5.10	5.25
D	19.00	20.00	21.00
D3	5.30	5.50	5.70
e	5.34	5.44	5.54
E	15.40	15.60	15.80
L1	14.40	14.60	14.80
L2	3.85	4.00	4.15
L3	0.35	0.50	0.65
ØP	3.40	3.60	3.80