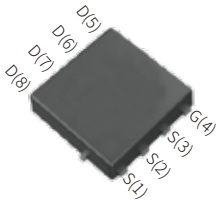
FEATURES

- $R_{DS(ON)}$ Typ = 4.6mΩ @ V_{GS} = 10V
- $R_{DS(ON)}$ Typ = 6.4mΩ @ V_{GS} = 4.5V
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔVds TESTED!



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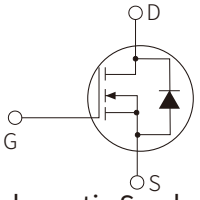


Schematic Symbol

APPLICATION

- Load Switch
- PWM Application
- Power Management

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-to-Source Voltage		V_{DS}	40	V
Pulsed Drain Current [1]		I_{DM}	240	A
Continuous Drain Current	T_C = 25°C	I_D	60	A
	T_C = 100°C		36	A
Power Dissipation T_C = 25°C		P_D	37	W
Gate-to-Source Voltage		V_{GS}	±20	V
Single Pulsed Avalanche Energy [2]		E_{AS}	56	mJ
Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Thermal Resistance, Junction to Case		$R_{\theta JC}$	3.3	°C/W

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	40			V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±100	nA
Drain Leakage Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V			1.0	μA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	1	1.65	2.2	V
Static Drain-Source ON-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=20A		4.6	6.0	mΩ
		V_{GS}=4.5V,I_D=15A		6.4	8.3	mΩ
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=20V, f = 1MHz		950		pF
Output capacitance	C_{oss}			597		pF
Reverse transfer capacitance	C_{rss}			28		pF
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=0 to 10V I_D=20A		17		nC
Gate-Source Charge	Q_{gs}			4.5		nC
Gate Drain("Miller") Charge	Q_{gd}			2		nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V,V_{GS}=10V R_{GEN}= 3Ω, I_D=20A		6.5		nS
Turn-on Rise Time	t_r			2.7		nS
Turn-Off Delay Time	$t_{d(off)}$			26		nS
Turn-Off Fall Time	t_f			3.6		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V_{SD}	I_S=20A,V_{GS}=0V			1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=20A di/dt = 100A/us		40		nS
Body Diode Reverse Recovery Charge	Q_{rr}			22		nC
Maximum Continuous Drain to Source Diode Forward Current	I_S				60	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}				240	A

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: Starting T_J=25°C, V_{DD}=20V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=15A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

PARAMETER CHARACTERISTIC CURVE

Fig 1: Output Characteristics

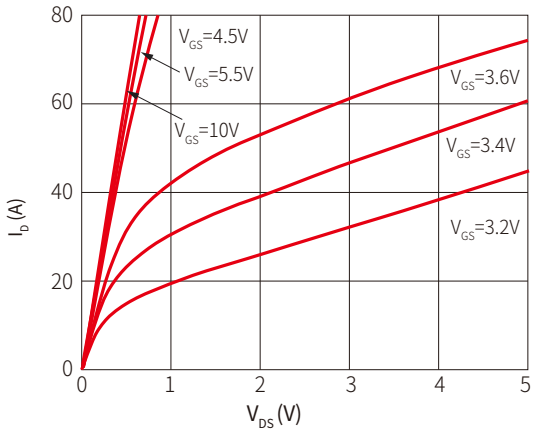


Figure 2: Typical Transfer Characteristics

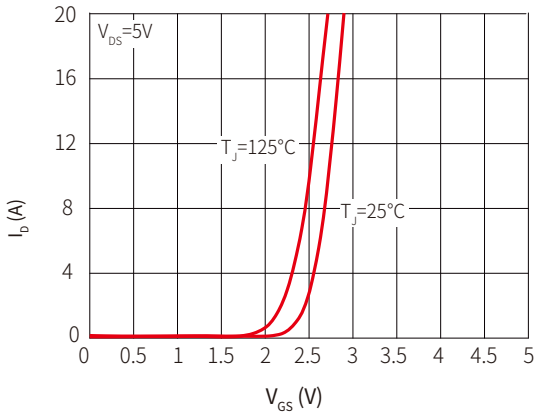


Figure 3: On-Resistance vs. Drain Current

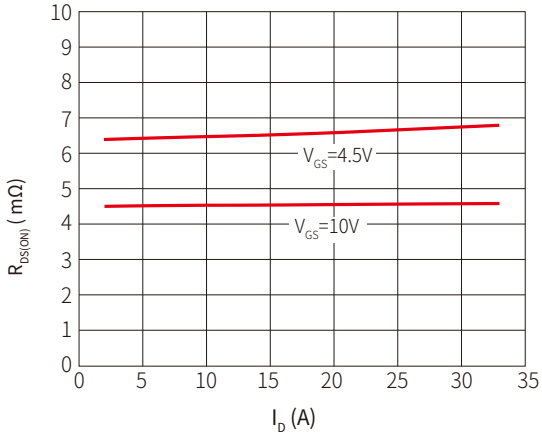


Figure 4: Body Diode Characteristics

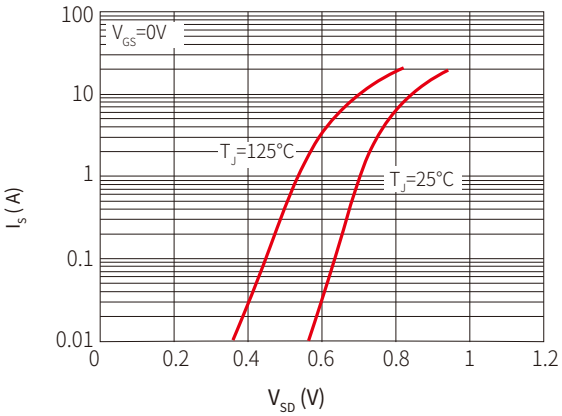


Figure 5: Gate Charge Characteristics

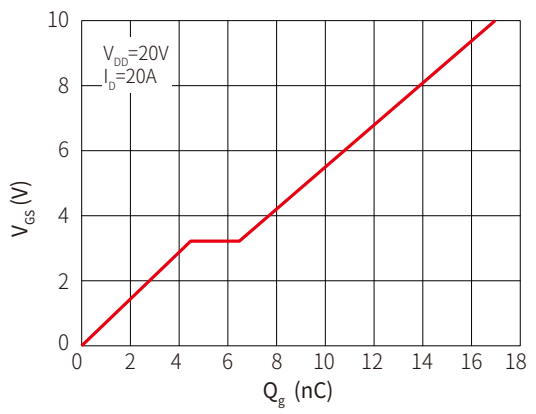


Figure 6: Capacitance Characteristics

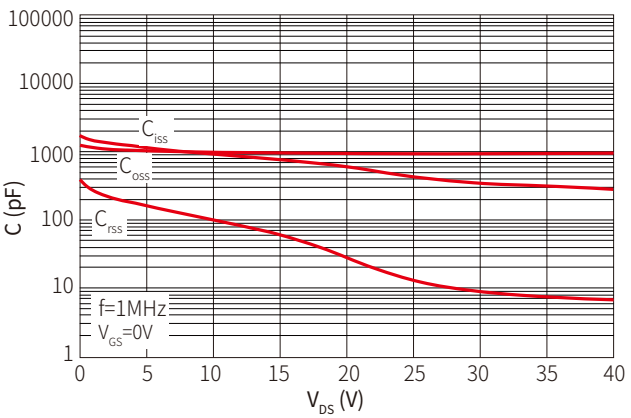


Figure 7: Normalized Breakdown Voltage vs.Junction Temperature

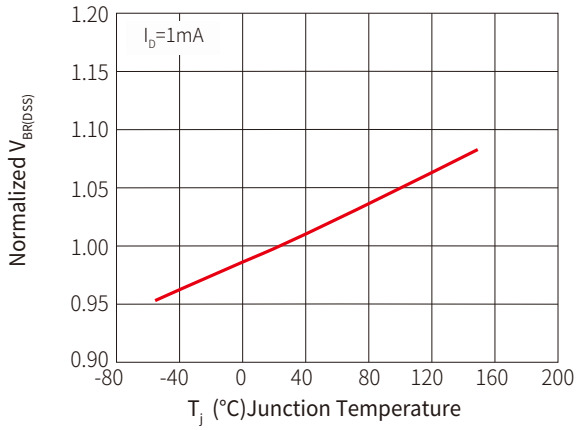


Figure 8: Normalized on Resistance vs.Junction Temperature

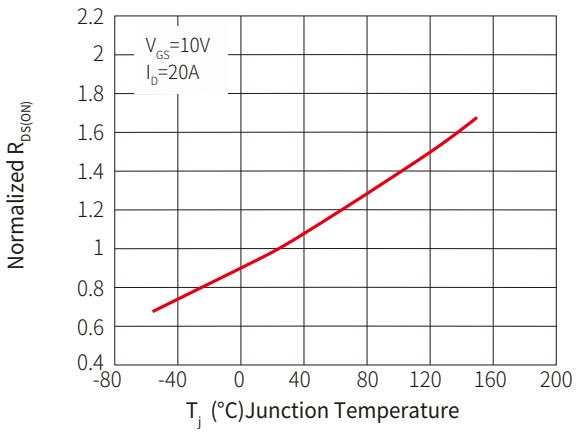


Figure 9: Maximum Safe Operating Area

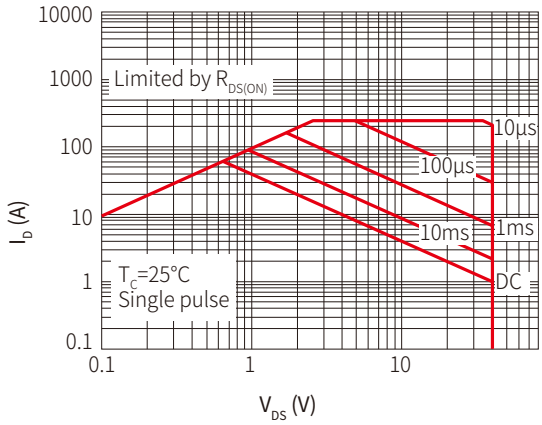


Figure 10: Maximum Continuous Drain Current vs.Ambient Temperature

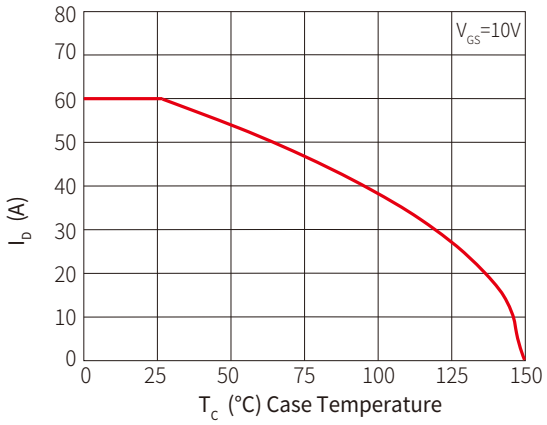


Figure 11: Normalized Maximum Transient Thermal Impedance

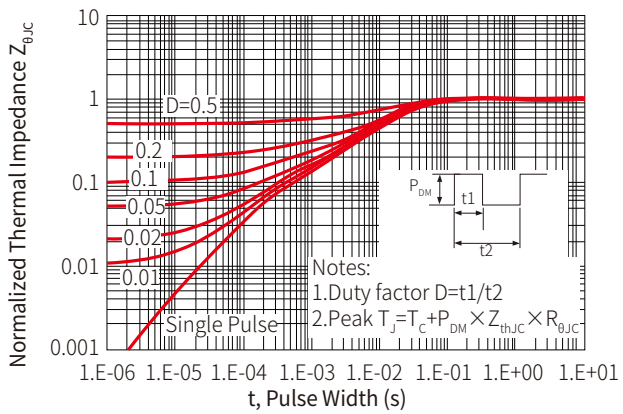
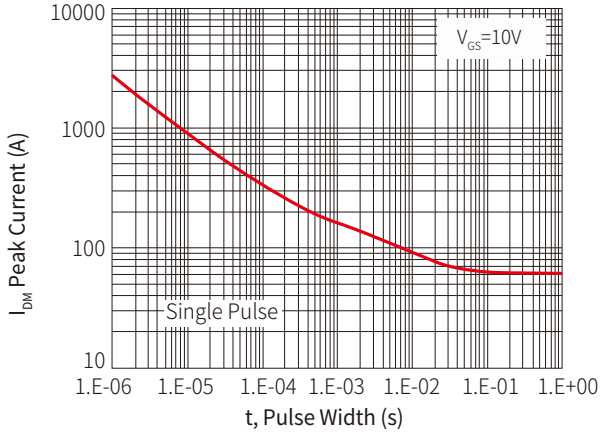


Figure 12: Peak Current Capacity



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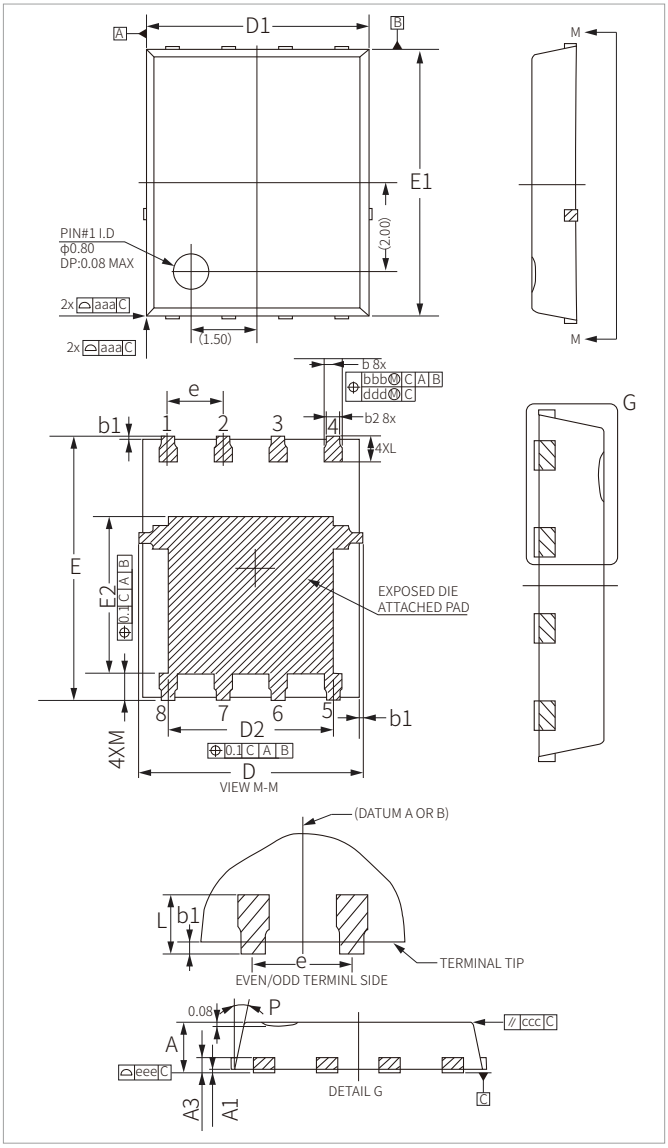

Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.17	0.035	0.046
A1	0.00	0.05	0.000	0.002
A3	0.254REF		0.010REF	
b	0.31	0.51	0.012	0.020
b1	0.03	0.13	0.001	0.005
b2	0.21	0.41	0.008	0.016
D	5.15BSC		0.203BSC	
D1	5.00BSC		0.197BSC	
D2	3.70	3.90	0.146	0.154
E	6.15BSC		0.242BSC	
E1	6.00BSC		0.236BSC	
E2	3.56	3.76	0.140	0.148
e	1.27BSC		0.050BSC	
L	0.51	0.71	0.020	0.028
M	0.51	0.71	0.020	0.028
P	10°	12°	0.394°	0.472°
aaa	0.10		0.004	
bbb	0.10		0.004	
ccc	0.10		0.004	
ddd	0.05		0.002	
eee	0.08		0.003	

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	Reel Size
SNM70N04G	PDFN5×6-8L	70N04 XXXX	5000PCS	13”

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