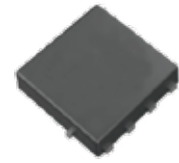
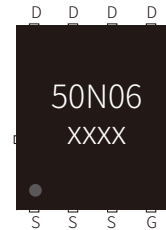


FEATURES

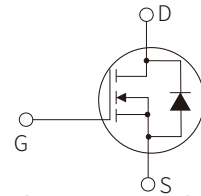
- | 100% EAS Guaranteed
- | Green Device Available
- | Super Low Gate Charge
- | Excellent CdV/dt effect decline
- | Advanced high cell density Trench technology



PDFN5×6-8L



Marking



Schematic Symbol

APPROVALS

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

ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	T _C =25°C	50
		T _C =100°C	32
Pulsed Drain Current ^{note1}	I _{DM}	180	A
Power Dissipation T _C =25°C	P _D	60	W
Single Pulsed Avalanche Energy ^{note2}	E _{AS}	36	mJ
Thermal Resistance, Junction to Case	R _{θJC}	2.5	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +175	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Off Characteristic						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1.0	μA
Gate to Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance ^{note3}	R _{DS(on)}	V _{GS} =10V, I _D =20A		11	14	mΩ
		V _{GS} =4.5V, I _D =10A		14	20	mΩ
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f = 1.0MHz		930		pF
Output capacitance	C _{oss}			230		pF
Reverse transfer capacitance	C _{rss}			8		pF
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =20A		22		nC
Gate-Source Charge	Q _{gs}			4.5		nC
Gate-Drain ("Miller") Charge	Q _{gd}			3.5		nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V R _G = 1.6Ω, I _D =20A		4.5		nS
Turn-on Rise Time	t _r			2.7		nS
Turn-Off Delay Time	t _{d(off)}			13.8		nS
Turn-Off Fall Time	t _f			2.7		nS
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I _S				45	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}				180	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =30A			1.2	V
Body Diode Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =20A, di/dt = 100A/μs		18		ns
Body Diode Reverse Recovery Charge	Q _{rr}				12	

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25°C, V_{DD}=30V, V_G=10V, R_G=25Ω, L=0.5mH, I_{AS}=12A
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%

CHARACTERISTIC CURVES

Figure 1: Output Characteristics

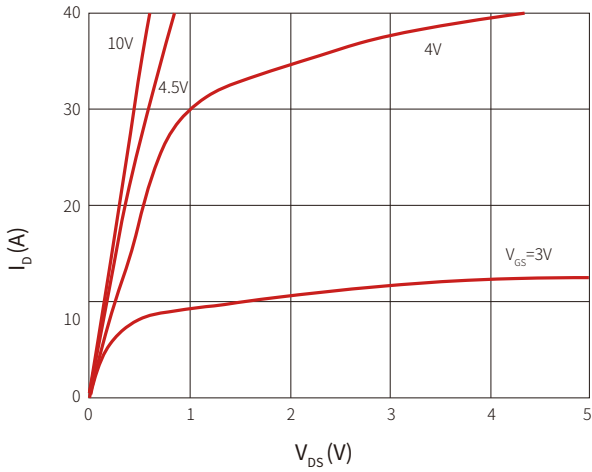


Figure 2: Typical Transfer Characteristics

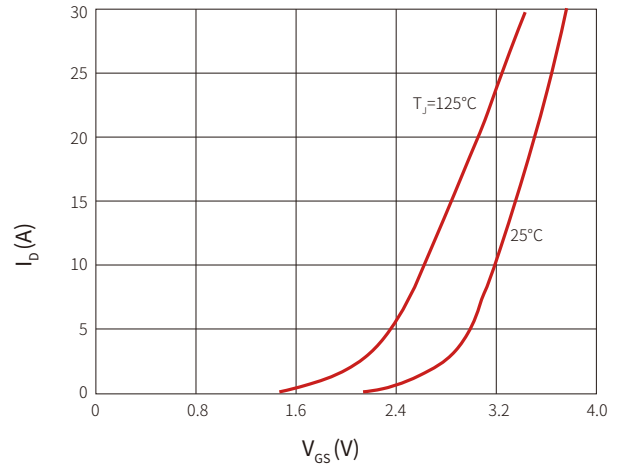


Figure 3: On-resistance vs. Drain Current

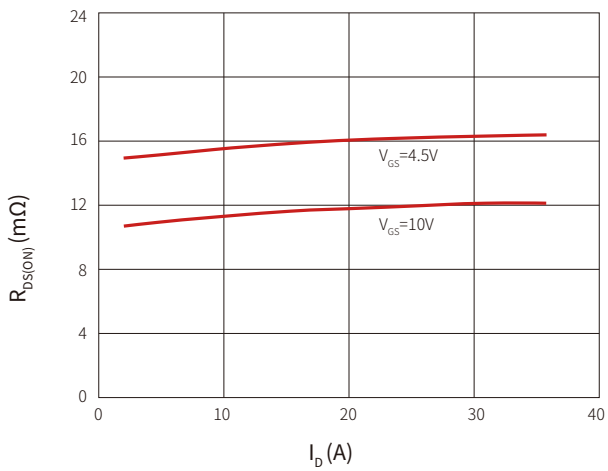


Figure 4: Body Diode Characteristics

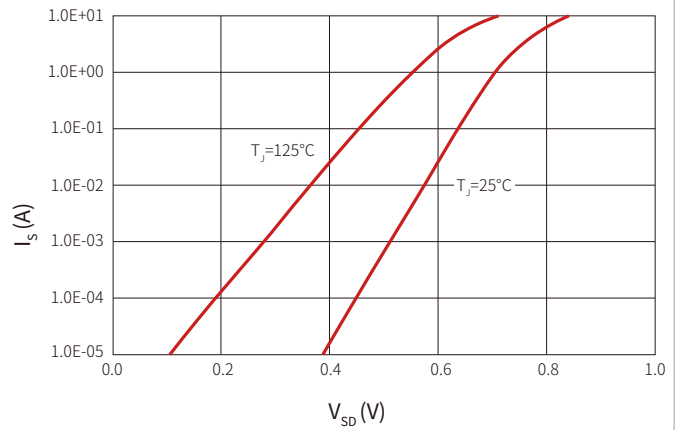


Figure 5: Gate Charge Characteristics

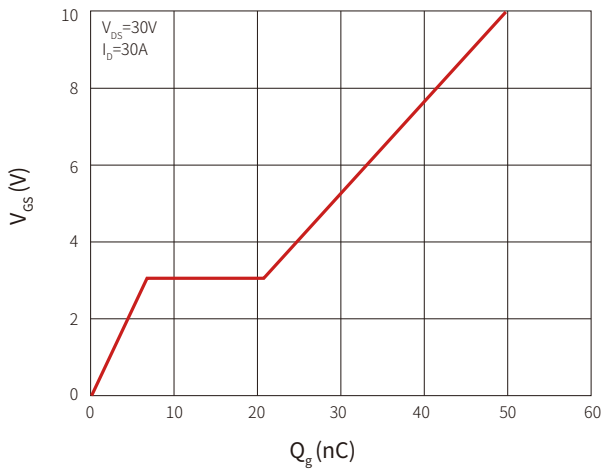


Figure 6: Capacitance Characteristics

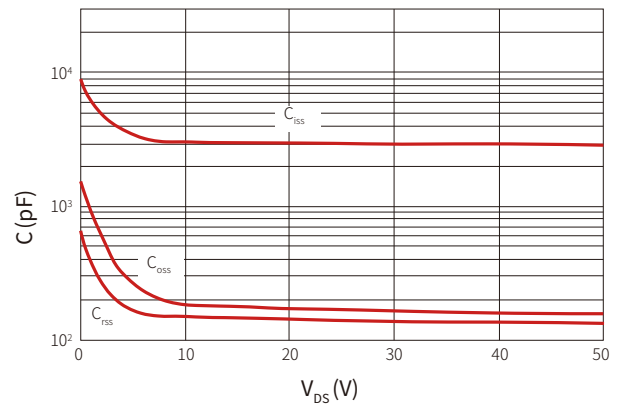


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

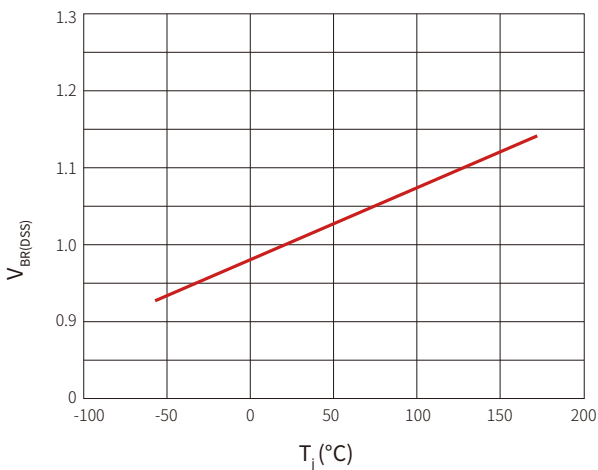


Figure 8: Normalized on Resistance vs. Junction Temperature

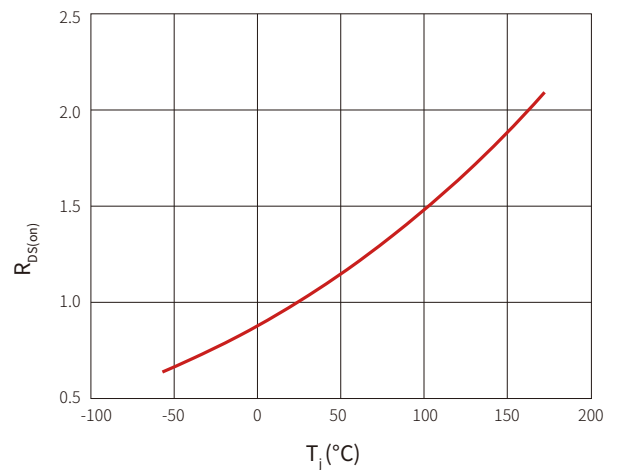


Figure 9: Maximum Safe Operating Area

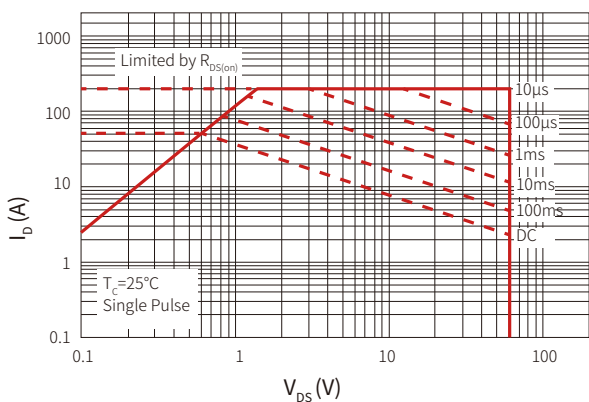


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

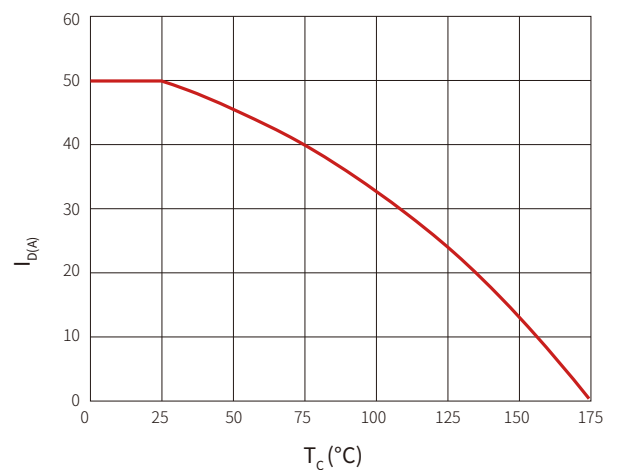
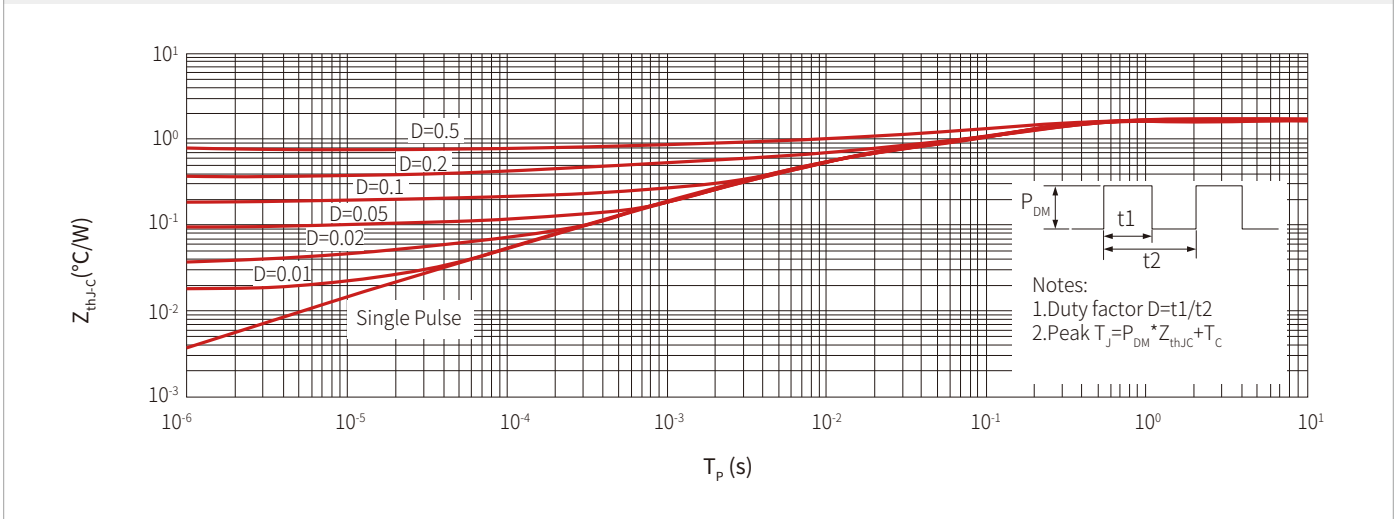
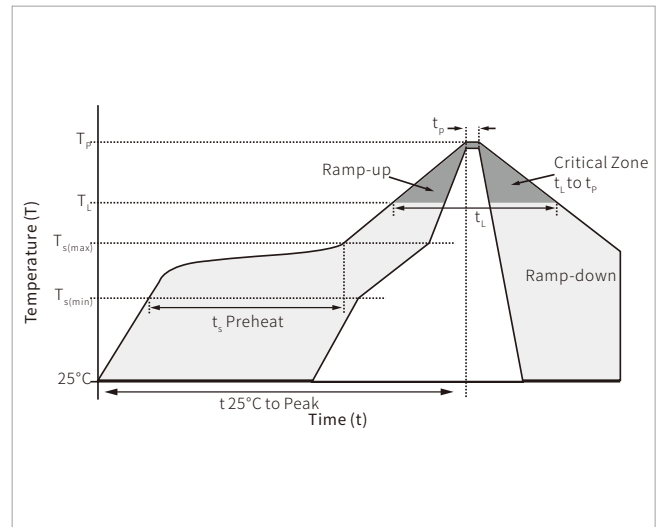


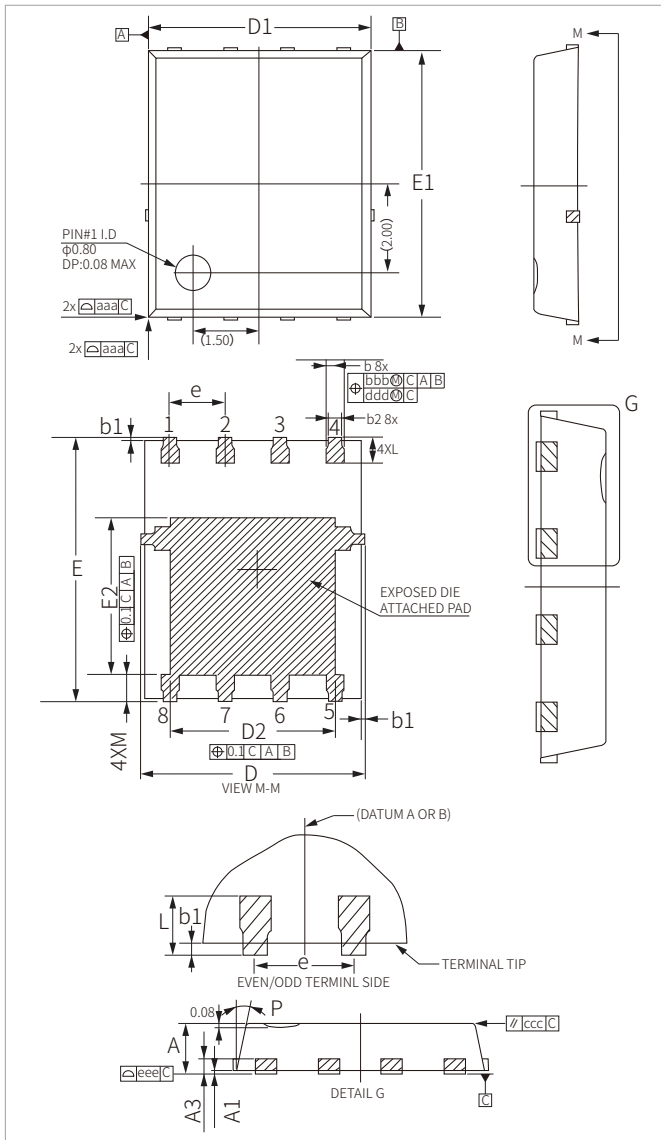
Figure 11: Maximum Effective Transient Thermal Impedance, Junction-to-Case


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_l)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C



PDFN5×6-8L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.05	0.037	0.041
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	QTY/Reel	Reel Size
SNM50N06G	PDFN5×6-8L	5000PCS	13"

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