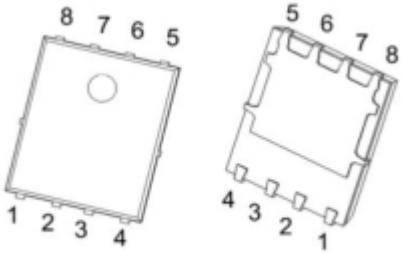
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	7.5mΩ@-10V	-45A
	11mΩ@-4.5V	

Feature

- Enhancement mode
- Low on-resistance RDS(on)
- Pb-free lead plating; RoHS compliant

Package



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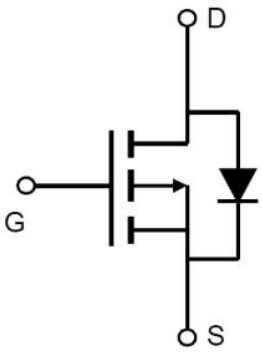
Circuit diagram



Marking

30P08 =Device Code
* =Week Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(T_C = 25℃)	I_D	-45	A
Pulsed Drain Current [1]	I_{DM}	-180	A
Single Pulsed Avalanche Energy [2]	E_{AS}	140	mJ
Power Dissipation(T_C = 25℃)	P_D	32	W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.9	℃/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

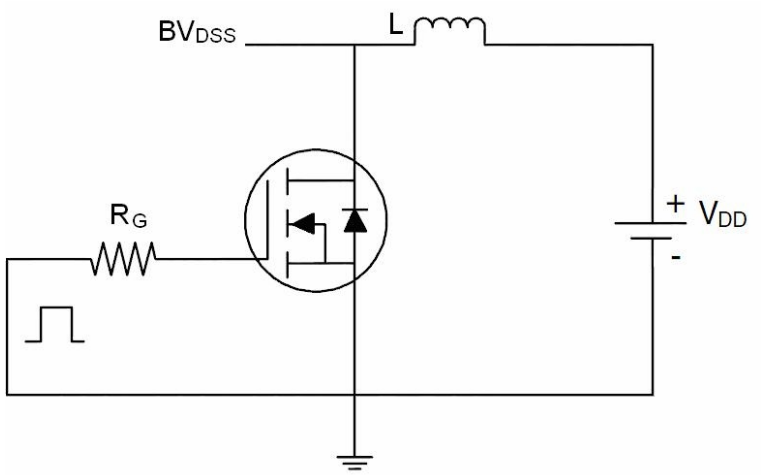
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-30V, V_{GS} = 0V			-1	uA
Gate-Source Leakage	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	uA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.6	-2.5	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-20A		7.5	10	mΩ
		V_{GS} =-4.5V, I_D =-10A		11	15	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-15V, V_{GS}=0V, f=1MHz		3459		pF
Output Capacitance	C_{oss}			427		
Reverse Transfer Capacitance	C_{rss}			394		
Total Gate Charge	Q_g	V_{DS}=-15V, I_D=-40A, V_{GS}=-10V		37		nC
Gate-Source Charge	Q_{gs}			6.5		
Gate-Drain Charge	Q_{gd}			9.4		
Switching Characteristics						
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=-15V, I_D=-20A, V_{GS} =-10V, R_{GEN}=2.5Ω		16		nS
Turn-on Rise Time	T_r			21		
Turn-off Delay Time	$T_{d(off)}$			68		
Turn-off Fall Time	T_f			52		
Drain-Source Diode Characteristics						
Maximum Continuous Drain to Source Diode Forward Current	I_S				-40	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}				-160	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-40A		-0.8	-1.2	V

Note:

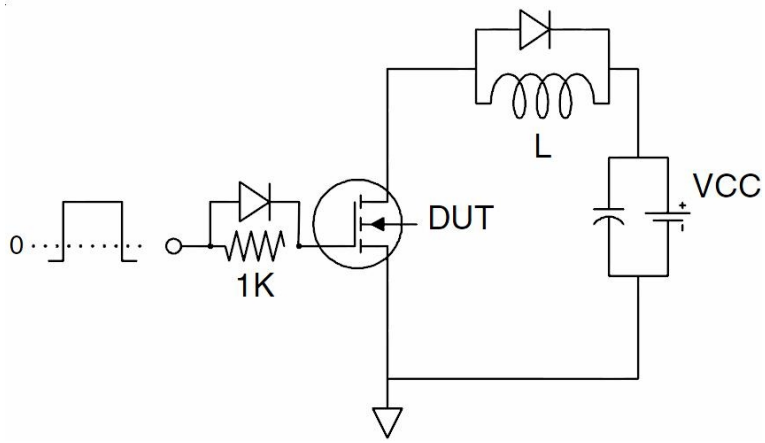
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: T_J= 25℃, V_{DD}= -15V, V_G= -10V, L= 0.5mH, R_G= 25Ω, I_{AS}= -20A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Test Circuit

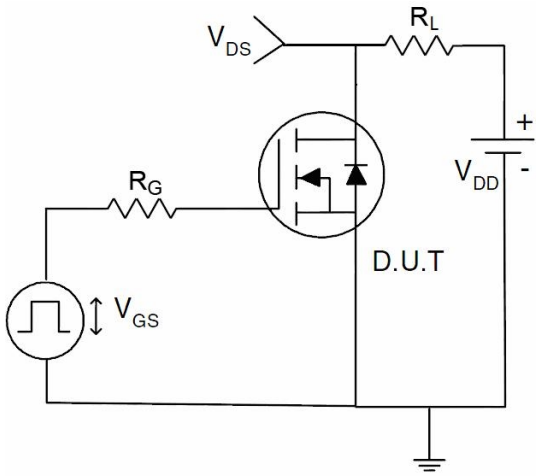
- EAS Test Circuits



- Gate Charge Test Circuit



- Switch Time Test Circuit



Typical Characteristics

Figure1: Output Characteristics

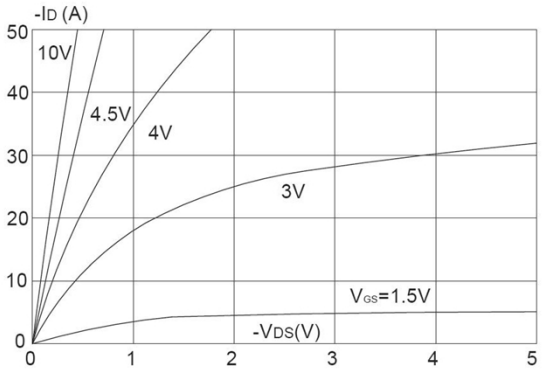


Figure 2: Typical Transfer Characteristics

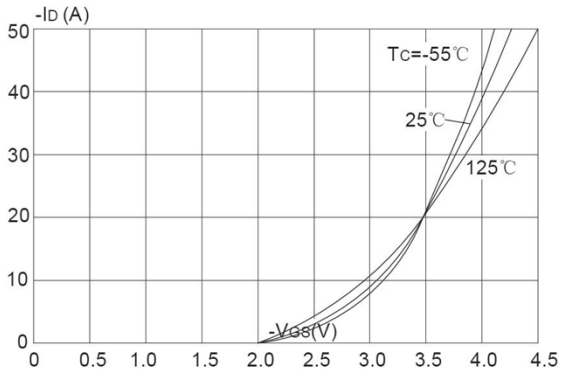


Figure 3: On-resistance vs. Drain Current

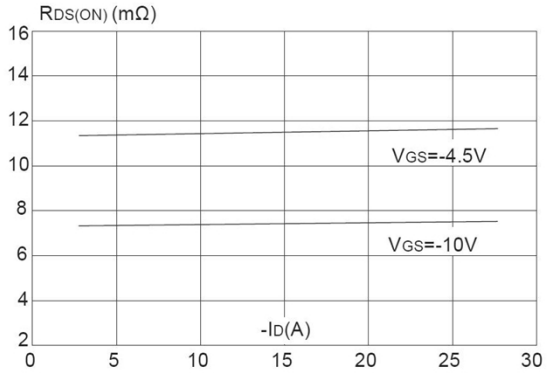


Figure 4: Body Diode Characteristics

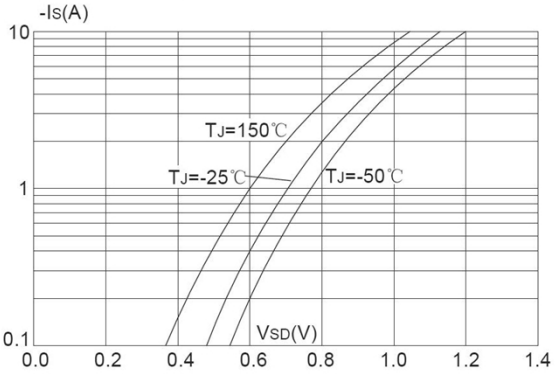


Figure 5: Gate Charge Characteristics

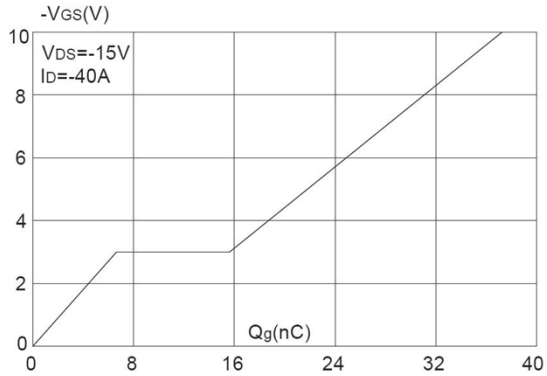


Figure 6: Capacitance Characteristics

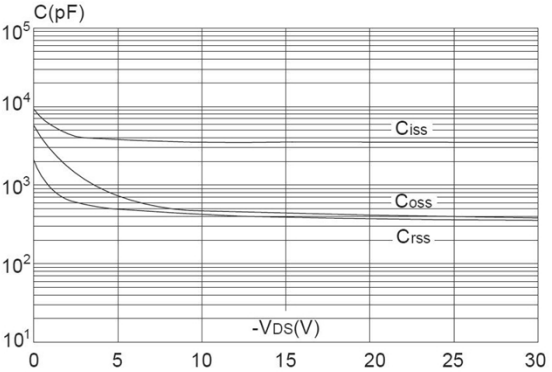


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

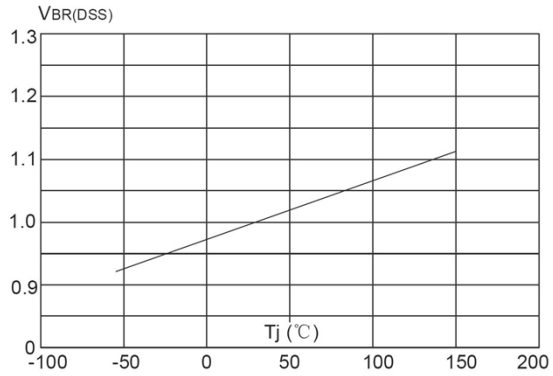


Figure 8: Normalized on Resistance vs. Junction Temperature

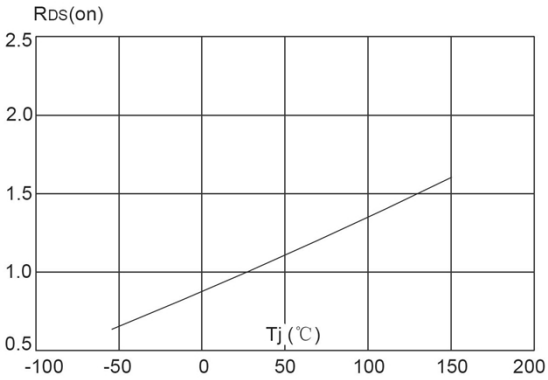


Figure 9: Maximum Safe Operating Area

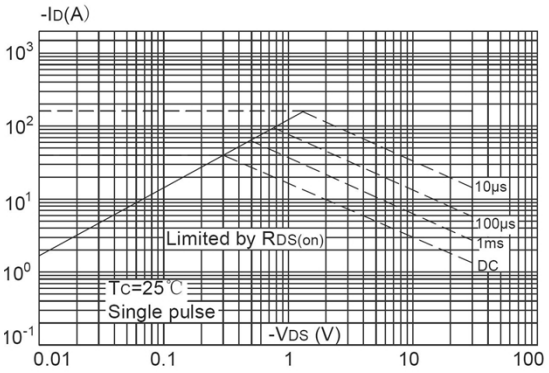


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

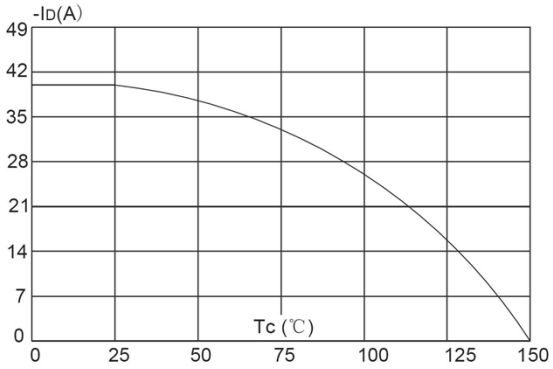
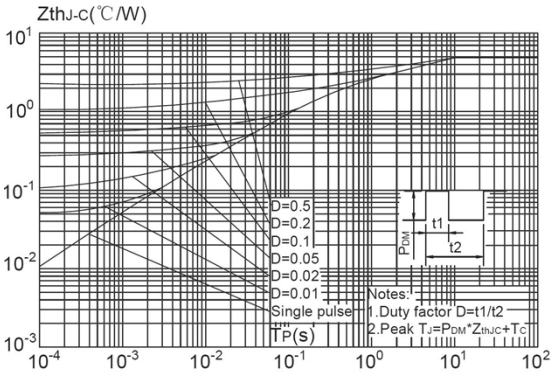
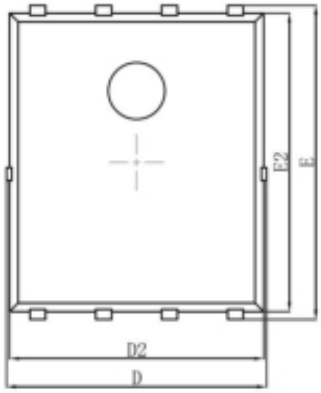


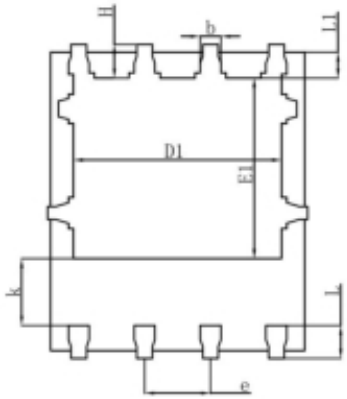
Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



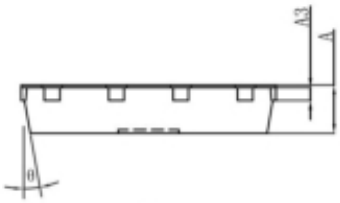
PDFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°