

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-100V	50mΩ@-10V	-25A
	65mΩ@-4.5V	

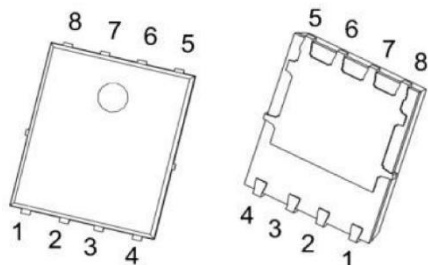
Feature

- Fast Switching
- Suffix “-Q1” for AEC-Q101

Application

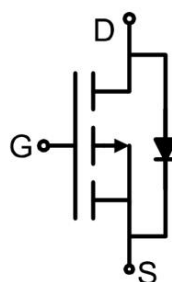
- Motor control
- Switching Regulators
- Isolated DC/DC converter

Package

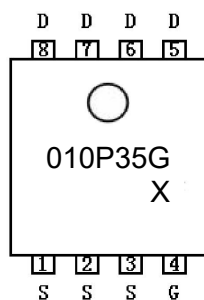


PDFN5X6-8L

Circuit diagram



Marking



Absolute maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-25	A
Pulsed Drain Current	I_{DM}	-100	A
Power Dissipation ($T_c=25^{\circ}\text{C}$)	P_D	100	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.25	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Electrical characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

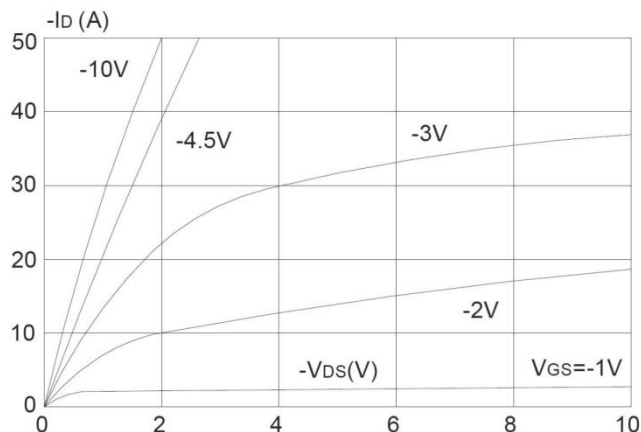
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =-250μA	-100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-100V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.6	-2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-15A		35	50	mΩ
		V _{GS} =-4.5V, I _D =-10A		45	65	mΩ
Dynamic characteristics ¹⁾						
Input Capacitance	C _{iss}	V _{DS} =-50V, V _{GS} =0V, f =1MHz		2205		pF
Output Capacitance	C _{oss}			197		
Reverse Transfer Capacitance	C _{rss}			14		
Total Gate Charge	Q _g	V _{DS} =-50V, V _{GS} =-10V, I _D =-5A		41		nC
Gate-Source Charge	Q _{gs}			8.1		
Gate-Drain Charge	Q _{gd}			8.2		
Turn-on delay time	t _{d(on)}	V _{DD} =-50V, V _{GS} =-10V, R _{GEN} =6Ω, I _D =-5A		13		nS
Turn-on rise time	t _r			37		
Turn-off delay time	t _{d(off)}			101		
Turn-off fall time	t _f			104		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-25	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =-1A			-1.2	V

Notes:

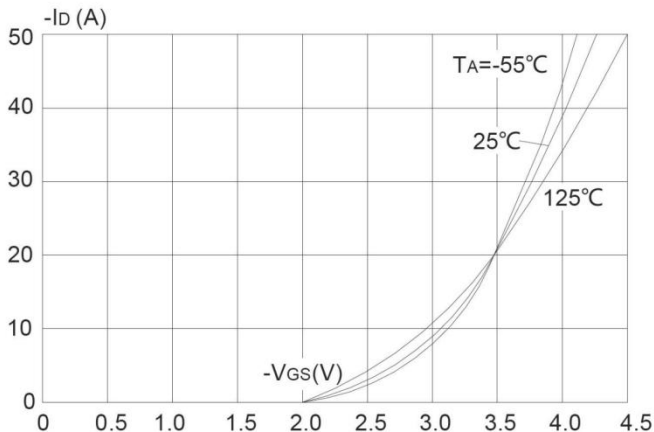
1) Guaranteed by design, not subject to production.

Typical Characteristics

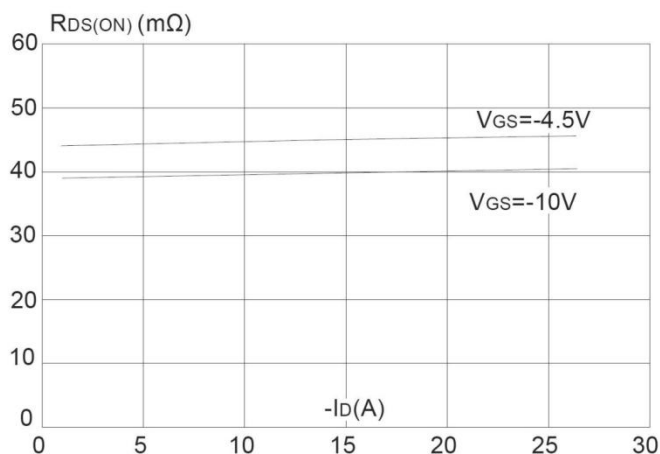
Output Characteristics



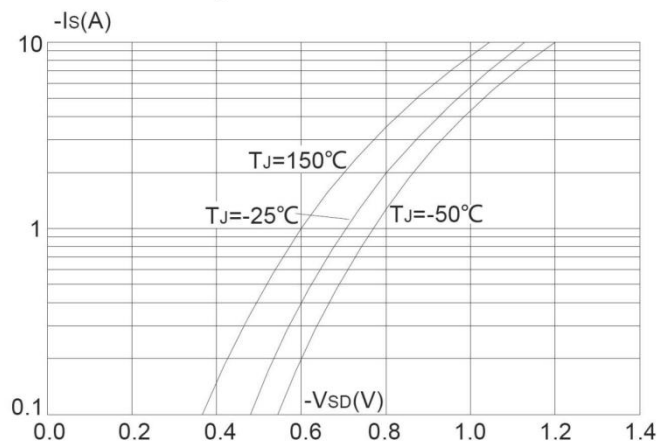
Typical Transfer Characteristics



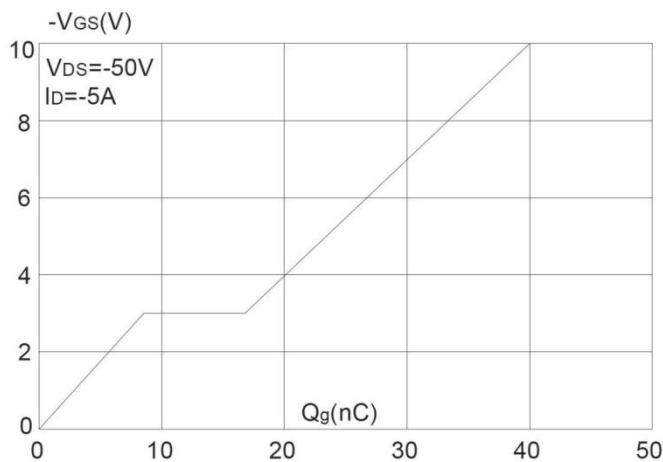
On-resistance vs. Drain Current



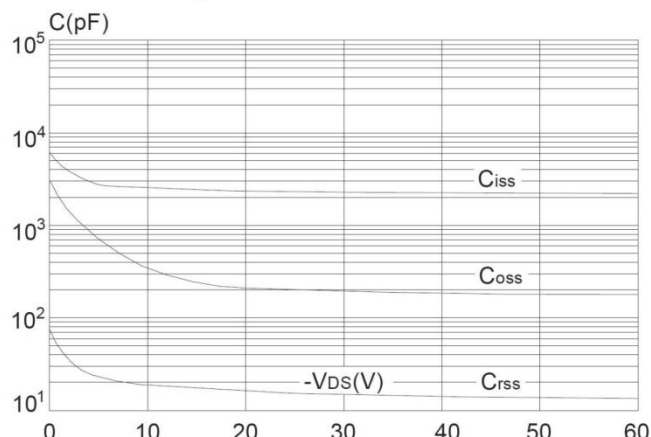
Body Diode Characteristics



Gate Charge Characteristics

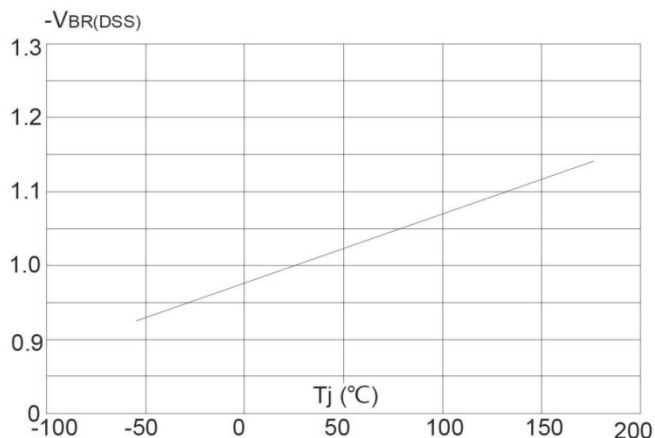


Capacitance Characteristics

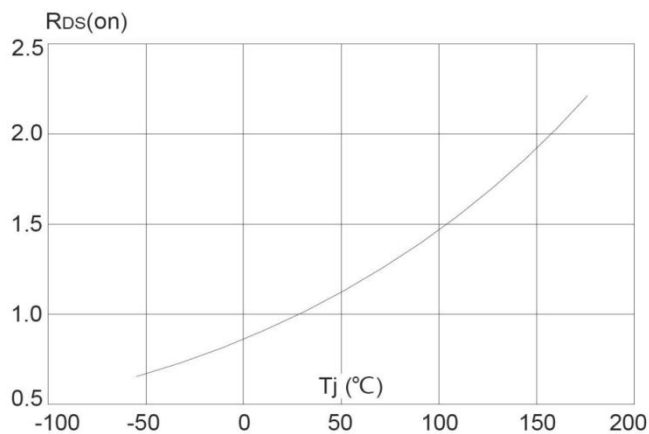


Typical Characteristics

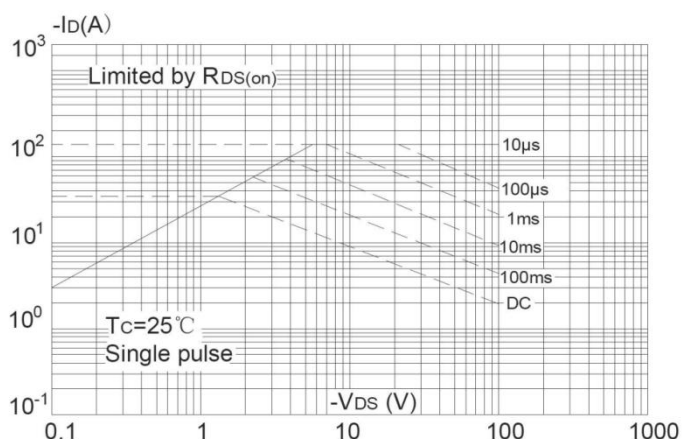
Normalized Breakdown Voltage vs. Junction Temperature



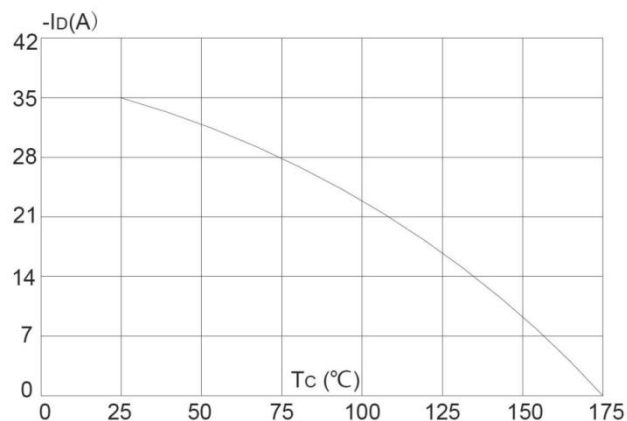
Normalized on Resistance vs. Junction Temperature



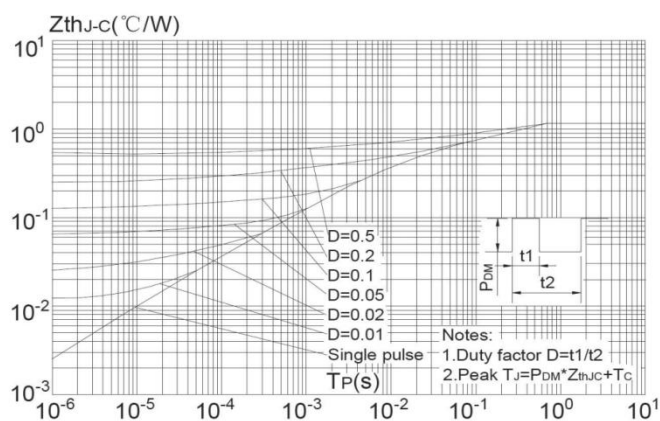
Maximum Safe Operating Area



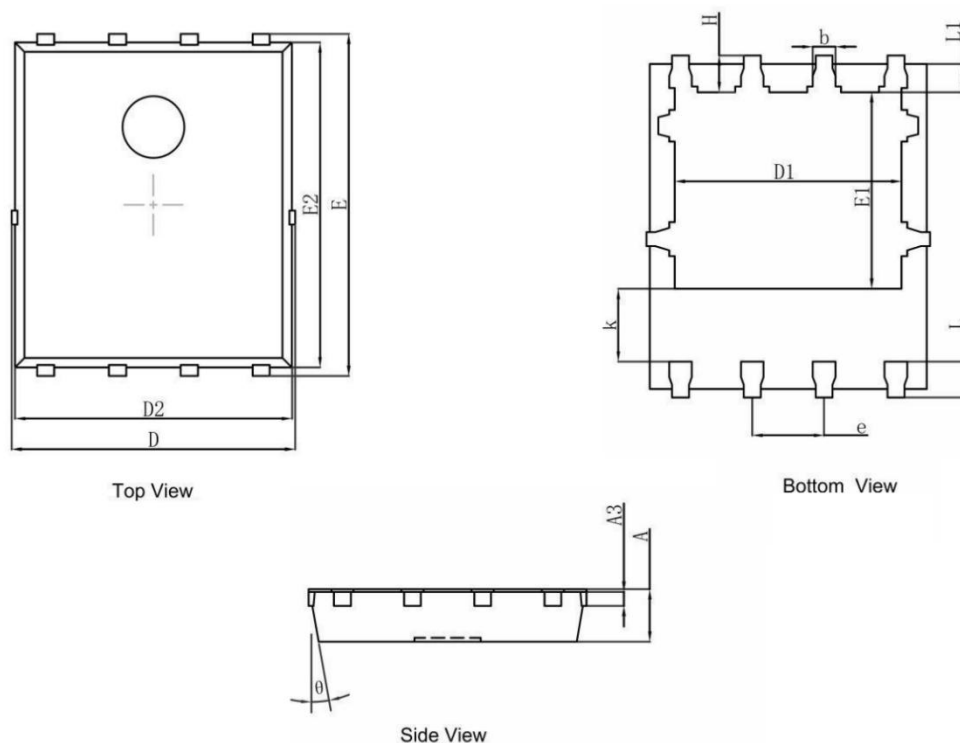
Maximum Continuous Drain Current vs. Case Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Case



PDFN5X6-8L Package Information



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°