-30V P-Channel Enhancement Mode Power MOSFET

DESCRIPTION：

·Advanced Trench Technology

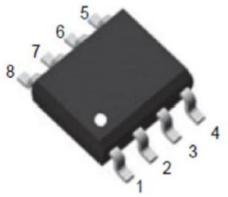
·Excellent $R_{DS(ON)}$ and Low Gate Charge

·Lead free

·100% UIS Tested

·100% ΔVds Tested

V_{DS}	-30V
I_{D_MAX}	-12A
$R_{DS(ON)_MAX}$ @V_{GS}=-10V	14mΩ



SOP-8

TYPICAL APPLICATIONS：

·PWM Applications

·Load Switch

·Power Management

MAXIMUM RATINGS (at T_C = 25 °C, unless otherwise specified)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current TC = 25℃ TC = 100℃	I_D	 -12 -7.6	A
Pulsed Drain Current，tp<10us(1)	I_{DM}	-48	A
Single Pulsed Avalanche Energy(2)	E_{AS}	64	mJ
Power dissipation	P_D	1.5	W
Junction & Storage temperature Range	T_J, T_{STG}	-55~+150	℃

Notes： 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. EAS condition: TJ=25℃, VDD= -15V, VG= -10V, RG=25Ω, L=0.5mH, IAS= -16A

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction to Ambient	$R_{\theta JA}$	82	℃/W

ELECTRICAL CHARATERISTICS (at T_J = 25 °C, unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = -250uA	$V_{(BR)DSS}$	-30			V
Zero Gate Voltage Drain Current VDS = -30 V, VGS = 0 V	I_{DSS}			-1	uA
Gate-Source Leakage Current VGS = ±20V, VDS = 0V	I_{GSS}			±100	nA
Gate-Source threshold voltage VDS = VGS, ID = -250uA	$V_{GS(th)}$	-1.0	-1.5	-2.5	V
Drain-Source On-State Resistance VGS = -10V, ID = -12A VGS = -4.5V, ID = -8A	$R_{DS(on)}$		9.3 14	14 20	mΩ
Input capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{iss}		2252		pF
Output capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{oss}		306		pF
Reverse transfer capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{rss}		222		pF
Total Gate Charge VDS=-15 V, ID = -10A, VGS= 0 to -10V	Qg		41		nC
Gate-Source Charge VDS=-15 V, ID = -10A, VGS= 0 to -10V	Qgs		7		nC
Gate-Drain("Miller") Charge VDS=-15 V, ID = -10A, VGS= 0 to -10V	Qgd		10		nC
Turn-on delay time VDD= -15V, ID = -10A , VGS=-10V, RG=3Ω	$t_{d\ (ON)}$		6		ns
Rise time VDD= -15V, ID = -10A , VGS=-10V, RG=3Ω	tr		2		ns
Turn-off delay time VDD= -15V, ID = -10A , VGS=-10V, RG=3Ω	$t_{d\ (OFF)}$		90		ns
Fall time VDD= -15V, ID = -10A , VGS=-10V, RG=3Ω	tf		52		ns
Maximum Continuous Drain to Source Diode Forward Current	I_S			-12	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}			-48	A
Diode Forward Voltage VGS = 0V, IS =- 11A	V_{SD}			-1.2	V
Body Diode Reverse Recovery Time IF = -10A, di/dt = 100A/us	trr		15		
Body Diode Reverse Recovery Charge IF = -10A, di/dt = 100A/us	Qrr		6		

Typical Performance Characteristics

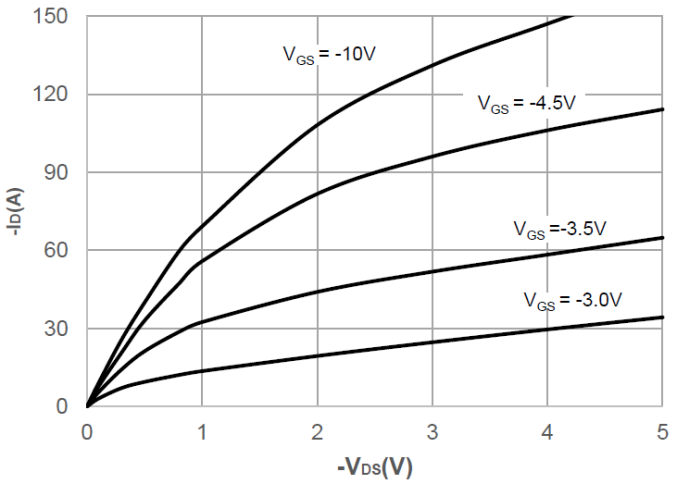


Figure 1. Output Characteristics

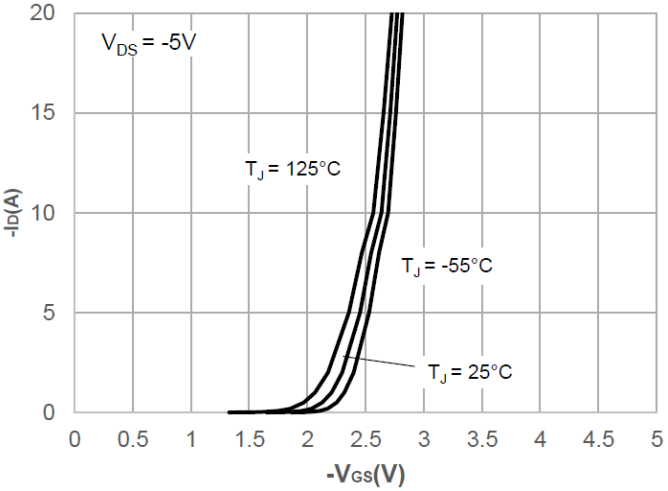


Figure 2. Typical Transfer Characteristics

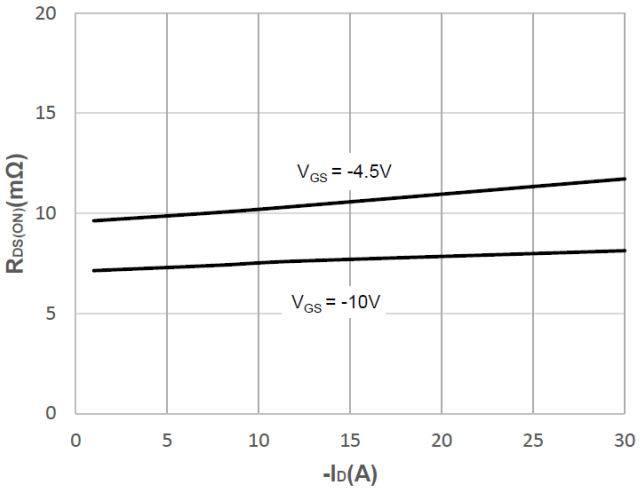


Figure 3. On-resistance vs. Drain Current

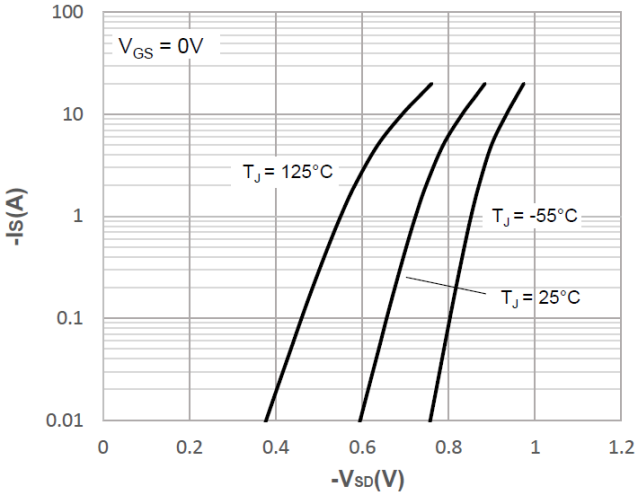


Figure 4. Body Diode Characteristics

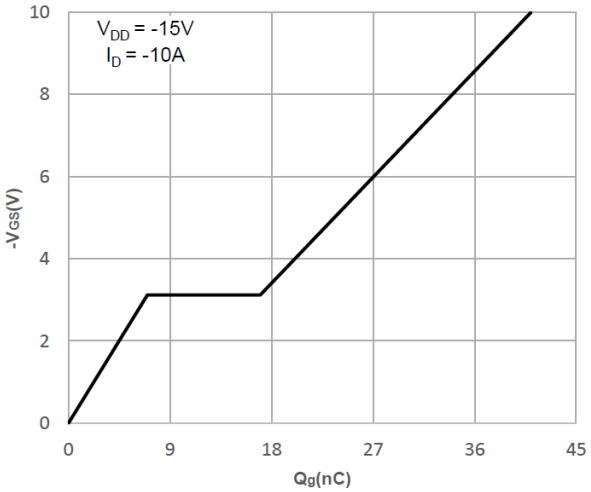


Figure 5. Gate Charge Characteristics

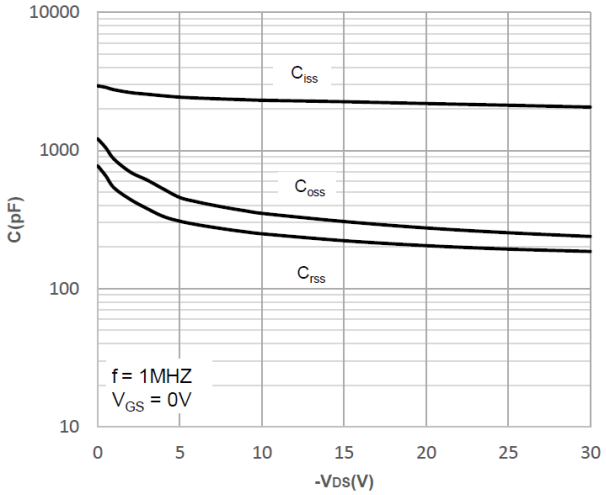


Figure 6. Capacitance Characteristics

Typical Performance Characteristics

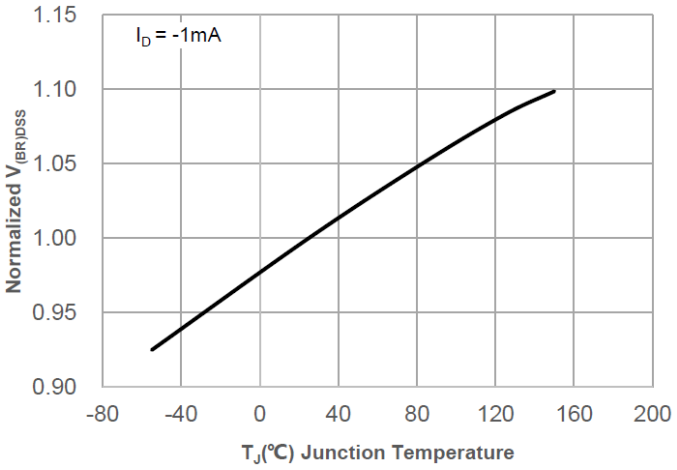


Figure 7. Normalized Breakdown Voltage vs. Junction Temperature

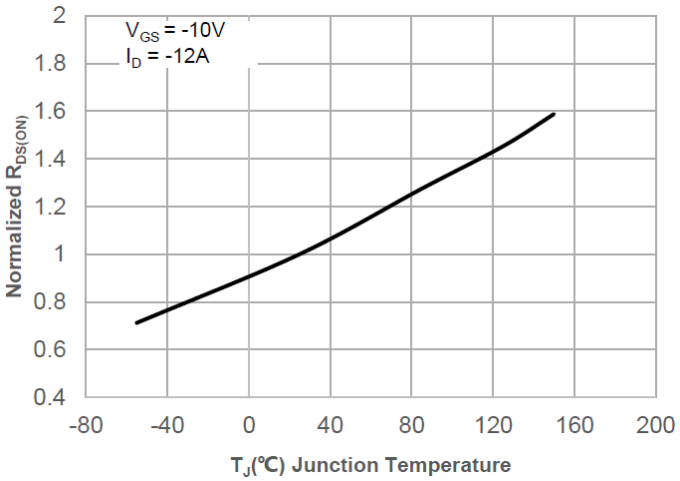


Figure 8. Normalized on Resistance vs. Junction Temperature

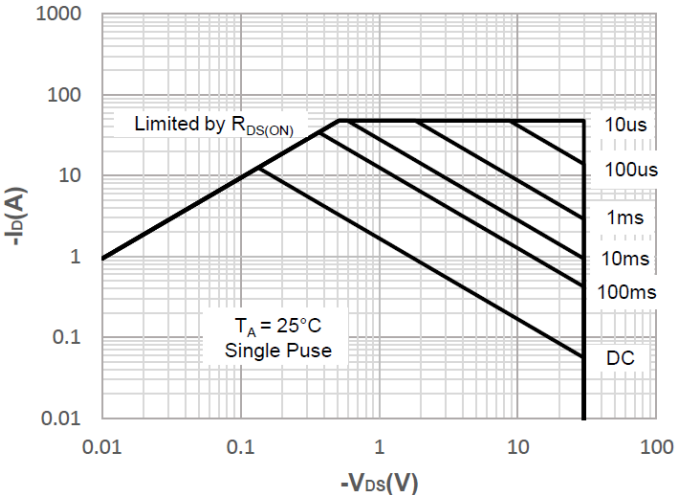


Figure 9. Maximum Safe Operating Area

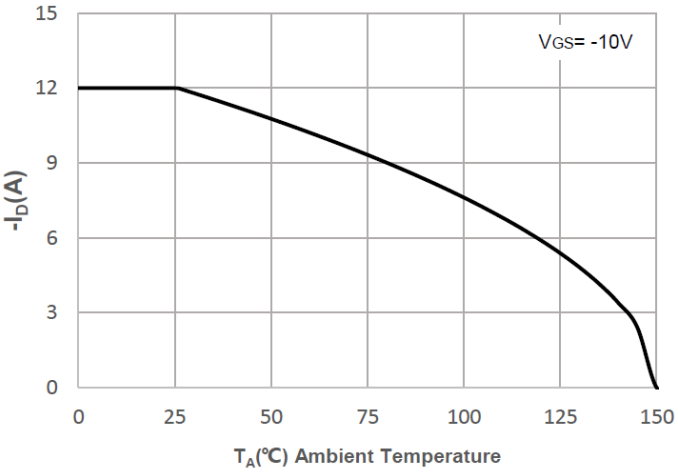


Figure 10. Maximum Continuous Drain Current vs. Case Temperature

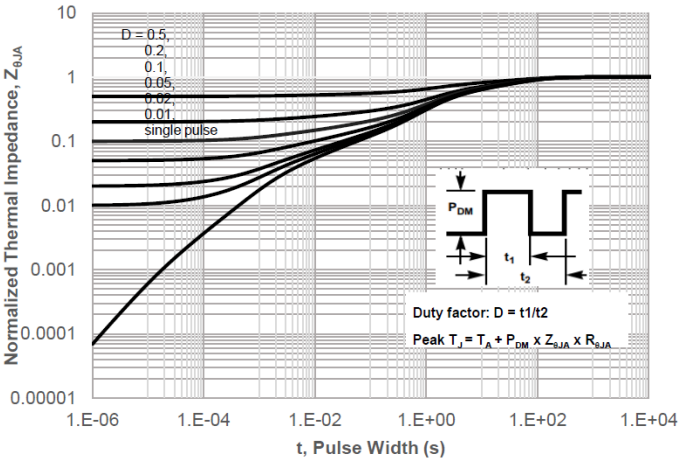


Figure 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

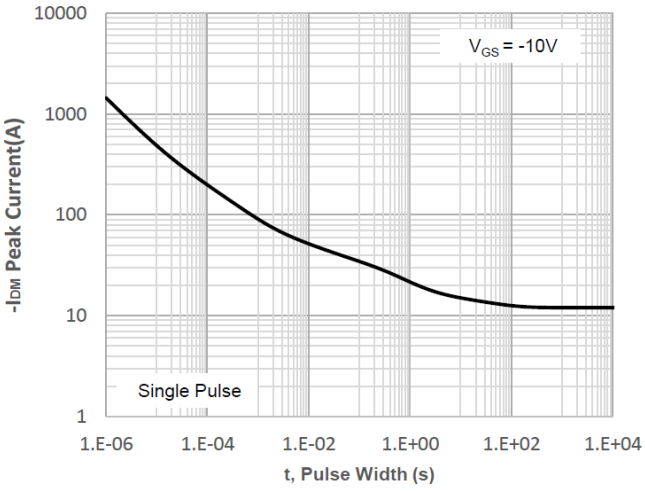
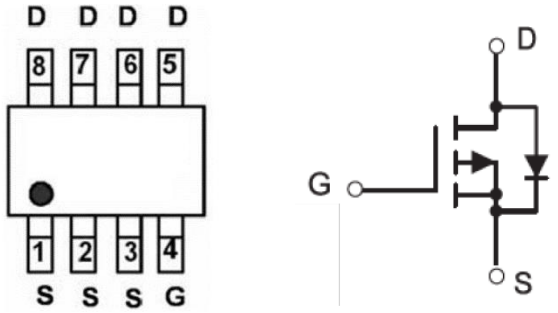
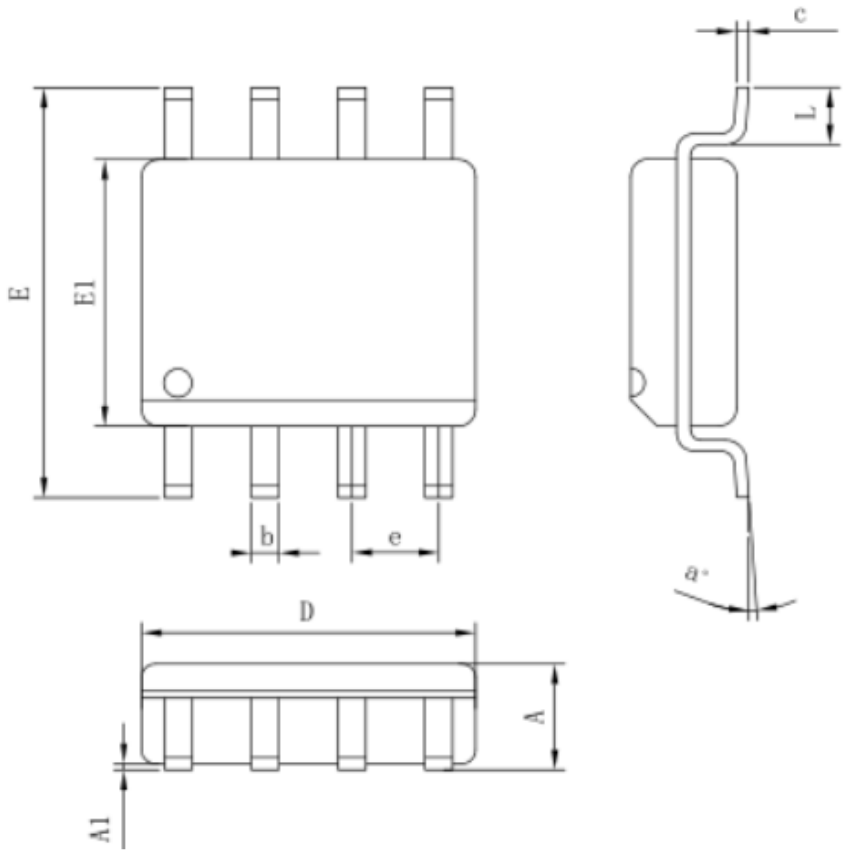


Figure 12: Peak Current Capacity

·Circuit diagram



·Package outlines : Dimensions in (mm)



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	--	--	1.75
A1	0.10	--	0.23
b	0.35	--	0.48
c	0.19	--	0.25
D	4.70	4.90	5.00
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
e	1.27BSC		
L	0.50	--	0.80
a°	0°	--	8°

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