-30V P-Channel Power MOSFET

DESCRIPTION：

V_{DSS}	-30V
I_D (Tc=25℃)	-4.1A
$R_{DS(ON)_Typ.}$ @V_{GS}=-10V	35mΩ

·Advanced Trench Technology

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

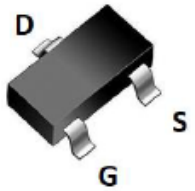
·Lead free

TYPICAL APPLICATIONS：

· Load Switch

· PWM Application

· Power management



SOT-23

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 T_C = 25℃ T_C = 100℃	I_D	 -4.1 -2.6	A
Pulsed Drain Current (1)	I_{DM}	-16	A
Power dissipation	P_D	1.3	mW
Junction & Storage temperature Range	T_J, T_{STG}	-55~+150	℃
Thermal Resistance, Junction to Case	$R_{\theta JA}$	97	℃/W

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. $R_{\theta JA}$ is measured with the device mounted on a 1inch2 pad of 2oz copper FR4 PCB

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}			-1.0	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	-1.8	-2.5	V
Drain-Source On-State Resistance VGS = -10V, ID = -4A VGS = -4.5V, ID = -3A	$R_{DS(on)}$		35 49	46 64	mΩ
Input capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{iss}		540	729	pF
Output capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{oss}		75	101	pF
Reverse transfer capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{rss}		57	77	pF
Total Gate Charge VDS =-15V, ID =-2A,VGS =0 to -10V	Qg		11		nC
Gate-Source Charge VDS =-15V, ID =-2A,VGS =0 to -10V	Qg_S		2		nC
Gate-Drain(“Miller”) Charge VDS =-15V, ID =-2A,VGS =0 to -10V	Qg_d		2		nC
Turn-on delay time VDD= -15V, VGS= -10V, ID=-2A, R_{GEN}=3Ω	$td_{(ON)}$		3		ns
Rise time VDD= -15V, VGS= -10V, ID=-2A, R_{GEN}=3Ω	tr		2		ns
Turn-off delay time VDD= -15V, VGS= -10V, ID=-2A, R_{GEN}=3Ω	$td_{(OFF)}$		26		ns
Fall time VDD= -15V, VGS= -10V, ID=-2A, R_{GEN}=3Ω	tf		15		ns
Maximum Continuous Drain to Source Diode Forward Current	I_S			-4.1	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}			-16	A
Drain to Source Diode Forward Voltage VGS = 0V, IS =-4.1A	V_{SD}			-1.2	V
Body Diode Reverse Recovery Time I_F = -2A, di/dt = 100A/us	Trr		9		
Body Diode Reverse Recovery Charge I_F = -2A, di/dt = 100A/us	Qrr		3		

Typical Performance Characteristics

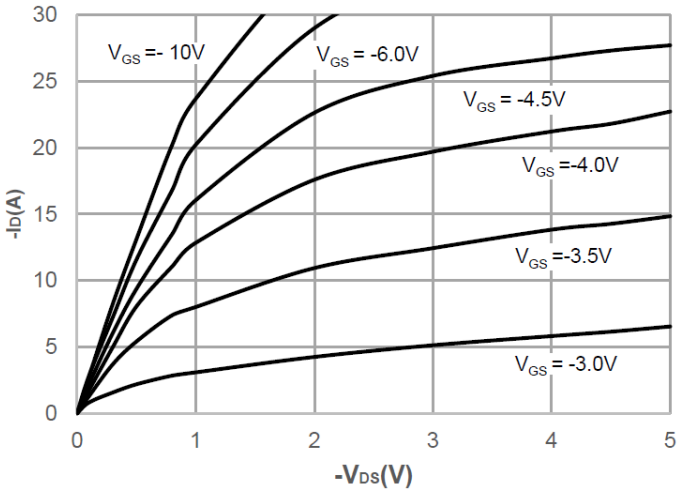


Figure 1. Output Characteristics

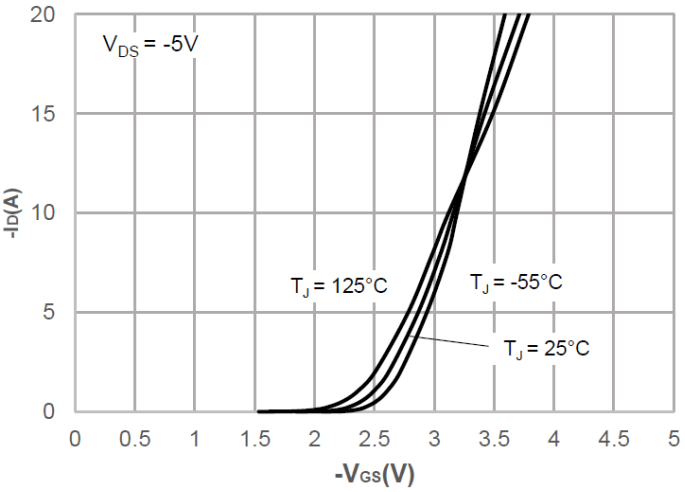


Figure 2. Typical Transfer Characteristics

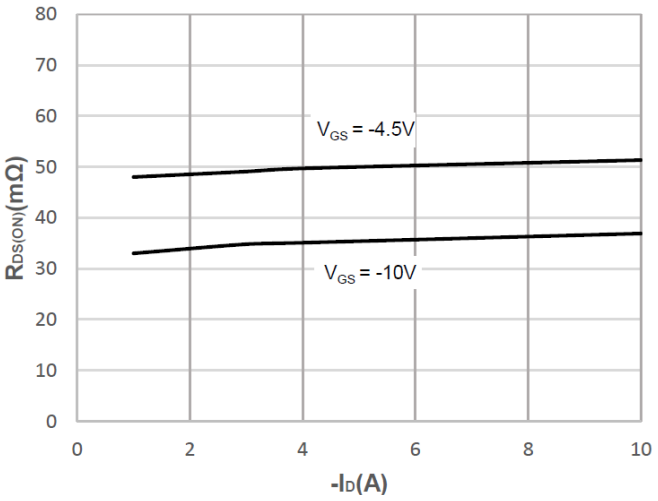


Figure 3. On-resistance vs. Drain Current

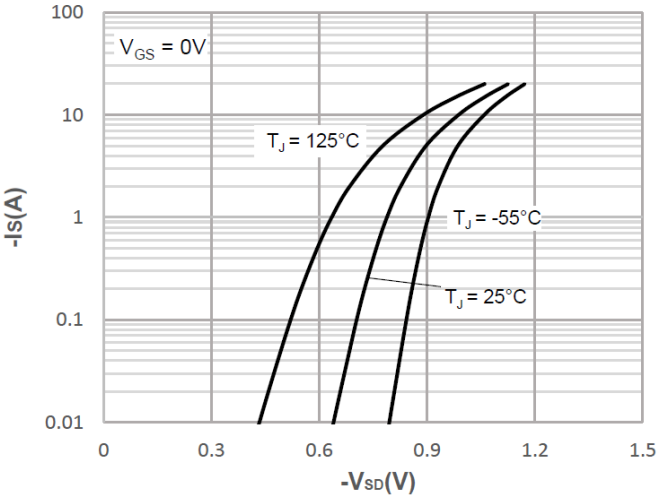


Figure 4. Body Diode Characteristics

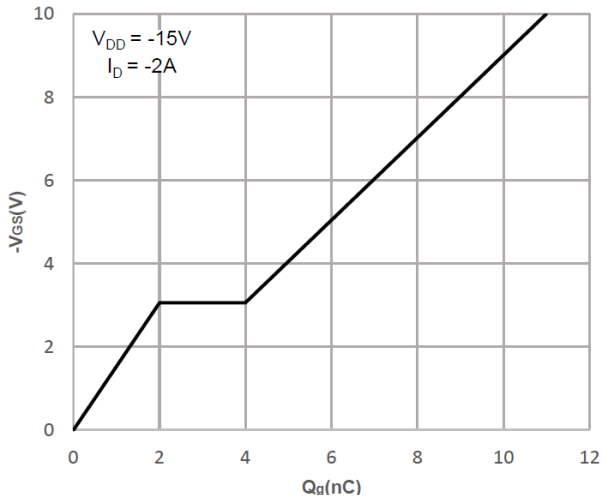


Figure 5. Gate Charge Characteristics

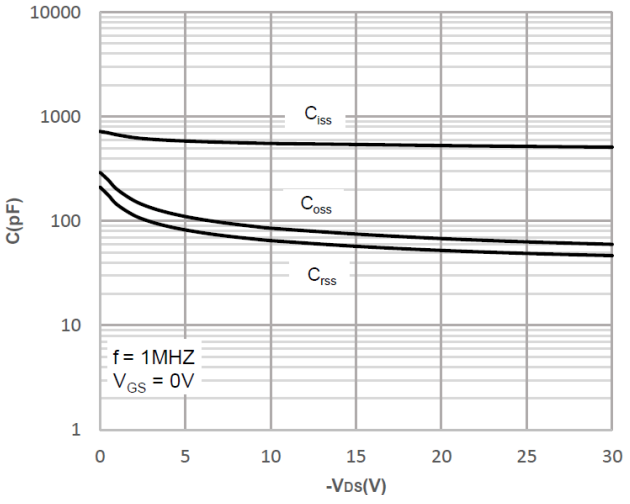


Figure 6. Capacitance Characteristics

Typical Performance Characteristics

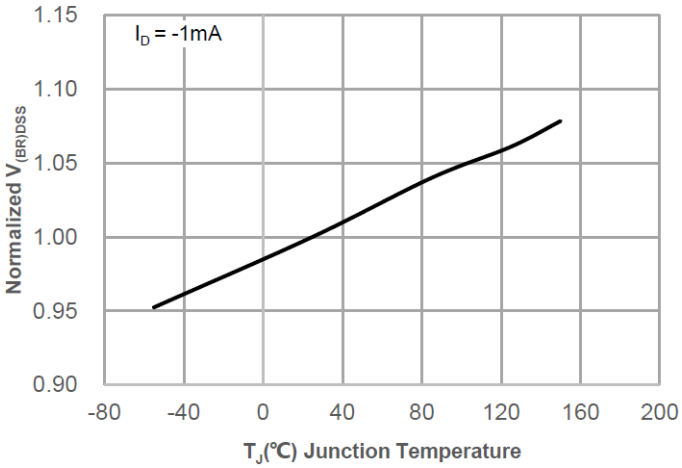


Figure 7. Normalized Breakdown Voltage vs. Junction Temperature

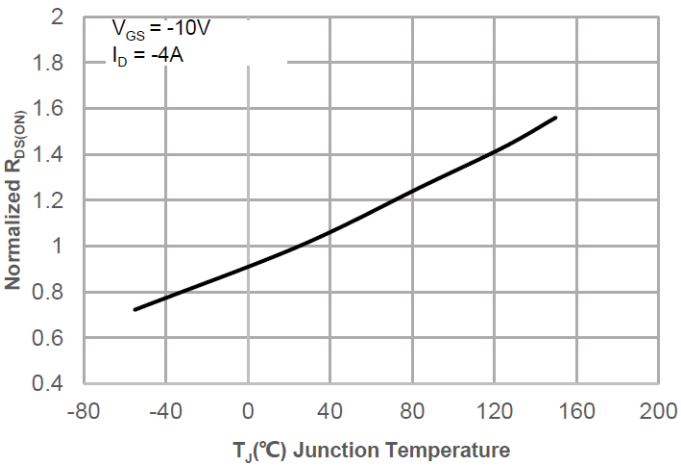


Figure 8. Normalized on Resistance vs. Junction Temperature

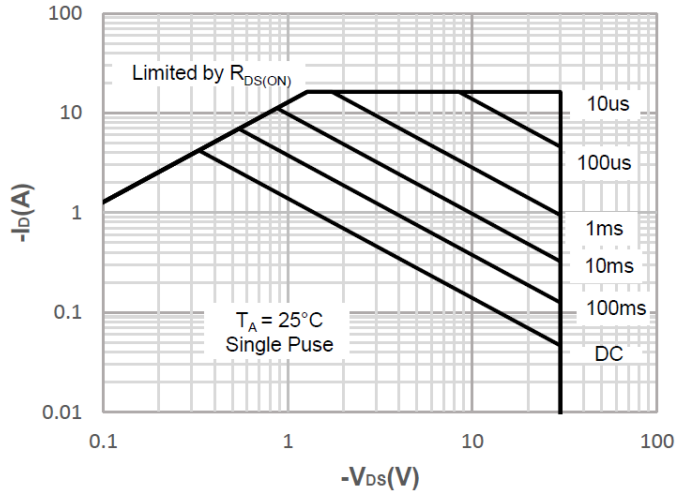


Figure 9. Maximum Safe Operating Area

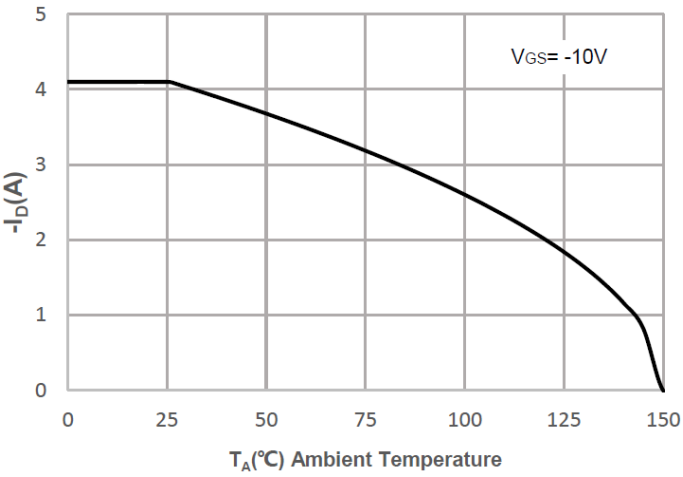


Figure 10. Maximum Continuous Drain Current vs. Case Temperature

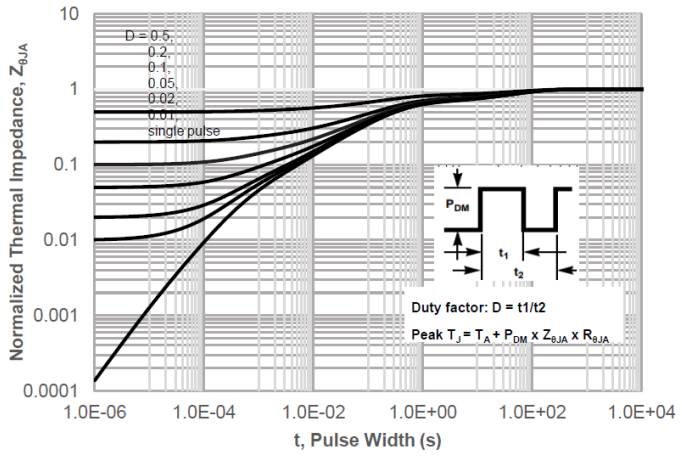


Figure 11. Normalized Maximum Transient Thermal Impedance

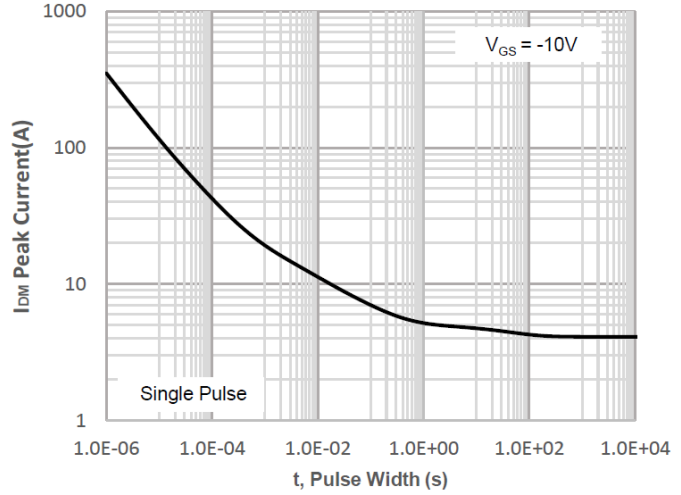
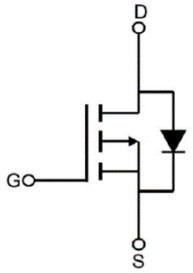
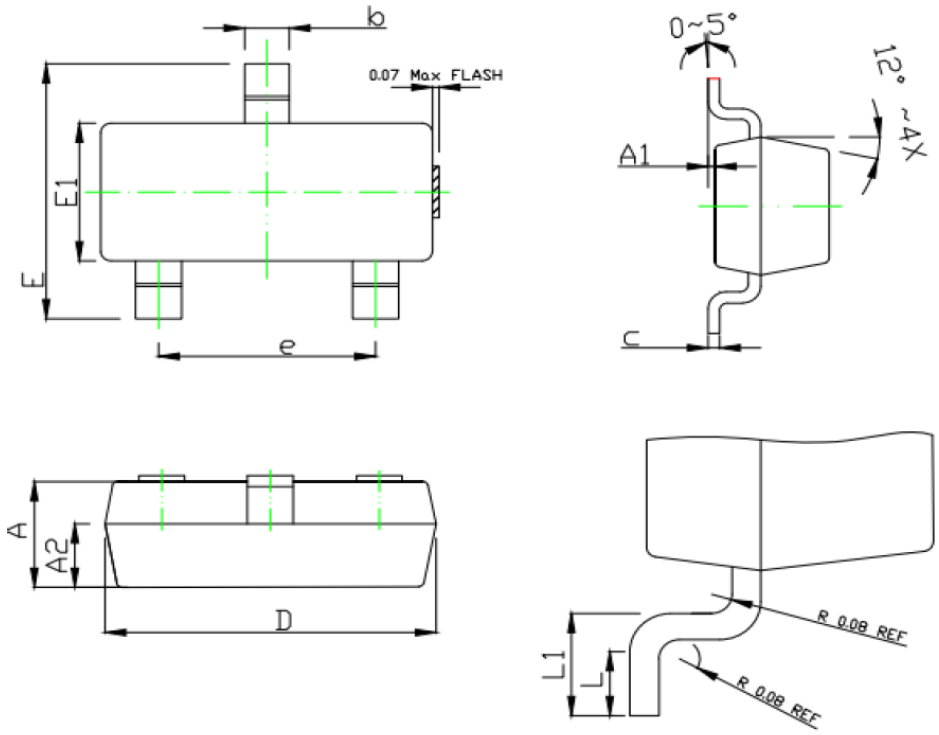


Figure 12: Peak Current Capacity

·Circuit diagram



·Package outlines : Dimensions in (mm)



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.95	1.00	1.05
A1	0.01	0.05	0.10
b	0.35	0.40	0.45
c		0.11 BSC	
D	2.80	2.90	3.00
E	2.30	2.40	2.50
E1	1.20	1.30	1.40
e		1.90 BSC	
L	0.20	–	–
L1	0.30	0.40	0.50
A2		0.60 REF	

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