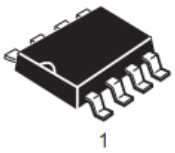
30V P-Channel Power MOSFET

FEATURES：

- Super high dense cell design for extremely low $R_{DS(ON)}$
- High power and current handing capability
- Pb-Free Lead Plating
- RoHS compliant

V_{DS}	-30V
I_D	-9.3A
$R_{DS(ON)\_MAX}$ @V_{GS}=-10V	18mΩ



SO-8

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

Characteristic	Condition	Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25℃ T_A=70℃	I_D	-9.3 -7.4	A
Pulsed Drain Current (1)		I_{DM}	-37	A
Maximum Power dissipation	Tc=25℃	P_D	2.5	W
Junction & Storage temperature Range		T_J, T_{STG}	-55~+150	℃

Notes： 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

THERMAL CHARACTERISTICS

Characteristic	Condition	Symbol	Value	Unit
Thermal resistance,	Junction to Ambient	$R_{\theta jA}$	50	℃/W

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

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage VGS = 0V, ID = -250uA	BV_{DSS}	-30			V
Zero Gate Voltage Drain Current VDS = -24 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		-3	V
Drain-Source On-State Resistance VGS = -10V, ID = -7A VGS = -4.5V, ID = -5.8A	$R_{DS(on)}$		14 23	18 30	mΩ
Input capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{iss}		1690		pF
Output capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{oss}		285		pF
Reverse transfer capacitance f=1MHz, VDS=-15 V, VGS=0 V	C_{rss}		210		pF
Total Gate Charge VDS= 15V, ID= -7A,VGS= -4.5V	Q_G		19		nC
Gate to Source Charge VDS= 15V, ID= -7A,VGS= -4.5V	Q_{GS}		5		nC
Gate to Drain Charge VDS= 15V, ID= -7A,VGS= -4.5V	Q_{GD}		7		nC
Turn-on delay time VDD=-10 V, VGS= -10V, ID= -1A, R_{GEN}=6Ω	td $_{(ON)}$		15		ns
Turn-on Rise time VDD=-10 V, VGS= -10V, ID= -1A, R_{GEN}=6Ω	tr		9		ns
Turn-off delay time VDD=-10 V, VGS= -10V, ID= -1A, R_{GEN}=6Ω	td $_{(OFF)}$		60		ns
Turn-off Fall time VDD=-10 V, VGS= -10V, ID= -1A, R_{GEN}=6Ω	tf		20		ns

Drain-Source Diode

Drain-Source Diode Forward Voltage VGS = 0V, I_S = -2.1A	V_{SD}			-1.2	V
Drain-Source Diode Forward Current	I_S			-2.1	A

Typical Performance Characteristics

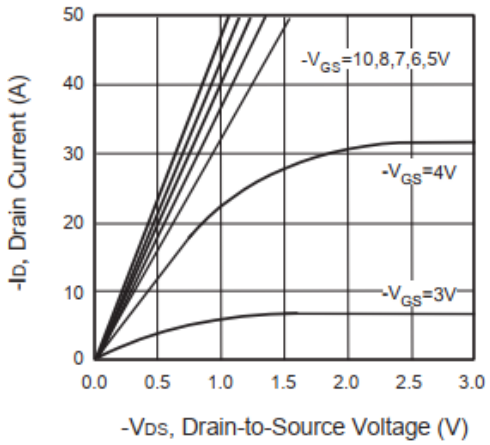


Figure 1. Output Characteristics

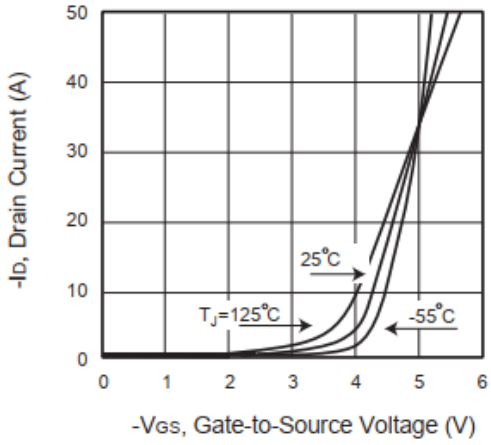


Figure 2. Typical Transfer Characteristics

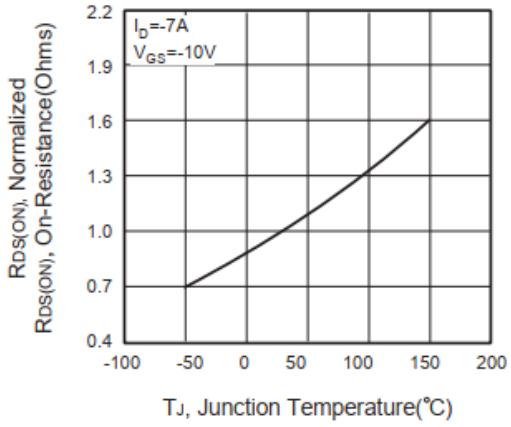


Figure 3. On-Resistance Variation with Temperature

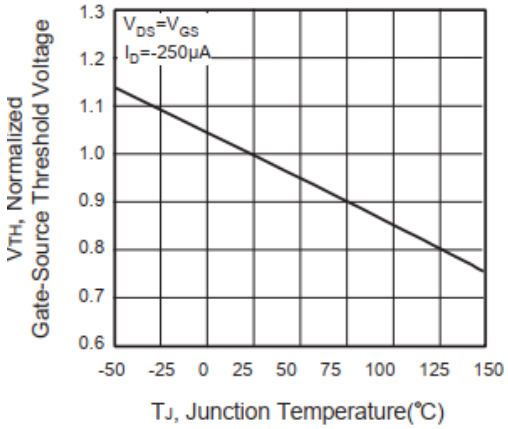


Figure 4. Gate Threshold Variation with Temperature

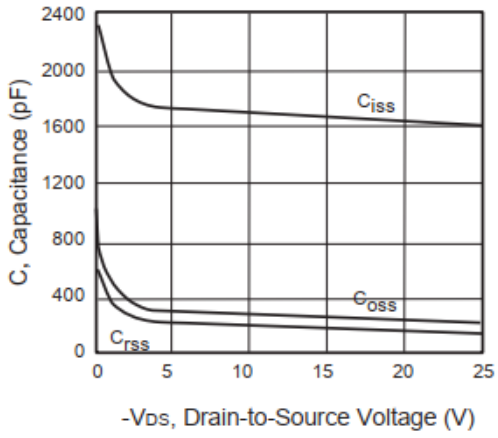


Figure 5. Capacitance haracteristics

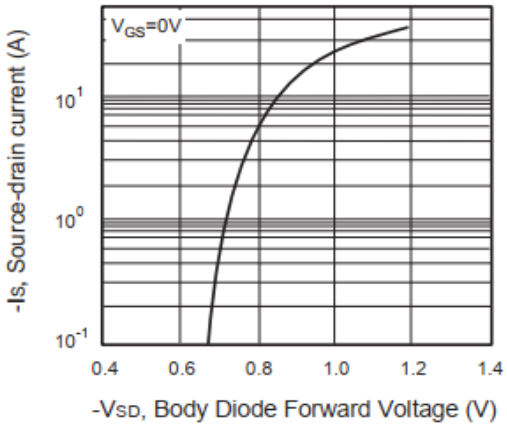


Figure 6. Body Diode Forward Voltage Variation with Source Current

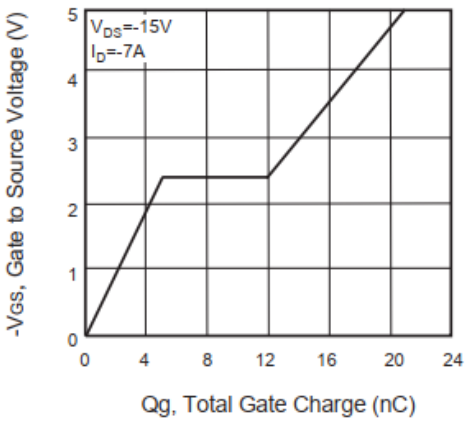


Figure 7. Gate Charge

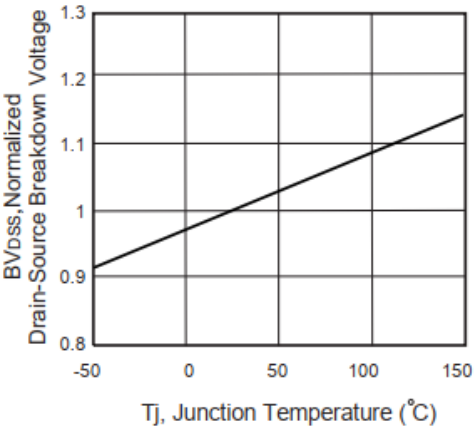


Figure 8. Breakdown Voltage Variation VS Temperature

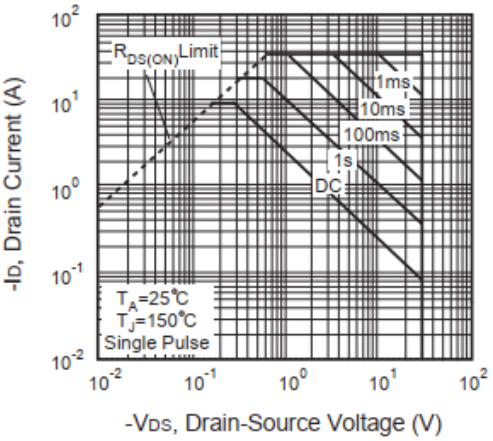


Figure 9. Maximum Safe Operating Area

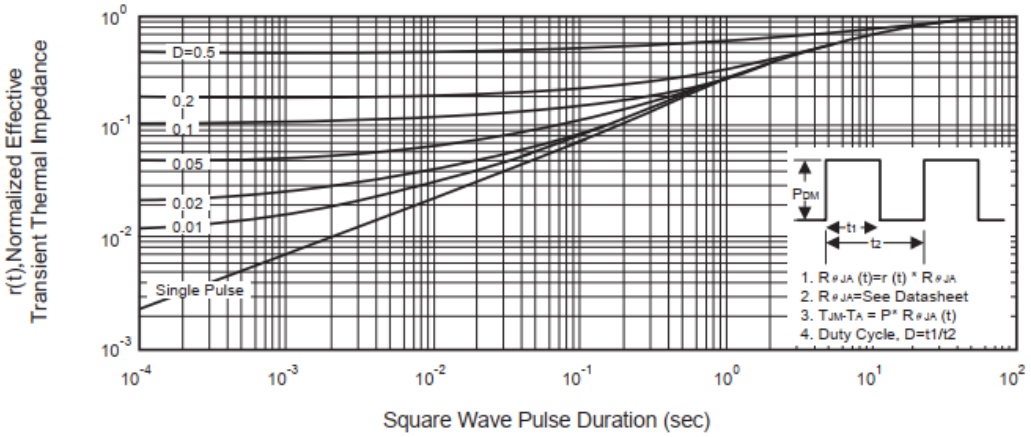
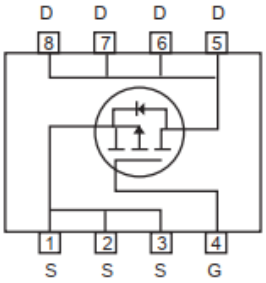


Figure 10. Normalized Thermal Transient Impedance Curve

・Circuit diagram



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