Descriptions

This -30V -5.3A P-Channel Power Trench MOSFET in a SOP-8 Plastic Package.

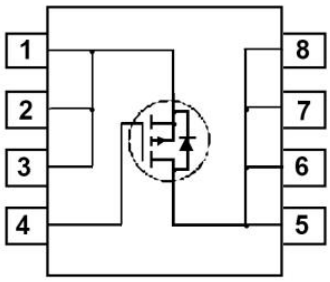
Features

- Low gate charge
- Fast switching speed
- High performance trench technology for extremely
- Low $R_{DS(ON)}$
- High power and current handling capability.
- Halogen-free Product.

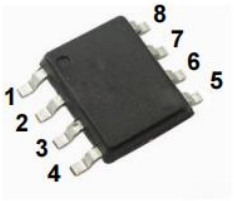
Applications

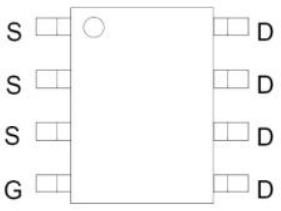
- Power management
- Load switch
- Battery protection

Equivalent Circuit



Pinning





PIN1、PIN 2、PIN 3: Source　PIN 4：Gate

PIN5、PIN 6、PIN 7、PIN 8: Drain

Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current –Continuous (note 1a)	I_D	-5.3	A
–Pulsed		-50	A
Power Dissipation for Single Operation (note 1a)	P_D	2.5	W
(note 1b)		1.2	
(note 1c)		1.0	
Thermal Resistance, Junction-to-Ambient (note 1a)	$R_{\theta JA}$	50	℃/ W
Thermal Resistance, Junction-to-Ambient (note 1c)	$R_{\theta JA}$	125	℃/ W
Thermal Resistance, Junction-to case (note 1)	$R_{\theta JC}$	25	℃/ W
Operating and Junction Temperature Range	T_j T_{stg}	-55~175	℃

Electrical Characteristics(Ta=25℃)

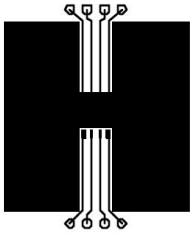
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V I_D=-250μA	-30			V
Breakdown Voltage Temperature Coefficient	$\Delta B_{VDSS}/\Delta T_J$	I_D=-250μA Referenced to 25℃		-23		mV/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-24V V_{GS}=0V			-1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1.0	-1.7	-3.0	V
Gate Threshold Voltage Temperature Coefficient	$\Delta V_{GS(th)}/\Delta T_J$	I_D=-250μA Referenced to 25℃		4.5		mV/℃
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=–10V I_D=–5.3A		42	50	mΩ
		V_{GS}=–4.5V I_D=–4A		65	80	
		V_{GS}=–10 V I_D=–5.3A T_J=125°C		57	77	
On-State Drain Current	$I_{D(on)}$	V_{GS}=–10V V_{DS}=–5V	-25			A
Forward Transconductance	g_{FS}	V_{DS}=–5V I_D=–5.3A		10		S

Electrical Characteristics(Ta=25℃)

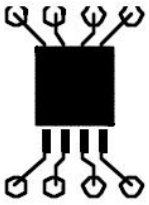
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	V_{DS}=–15V V_{GS}=0V f =1.0MHz		528		pF
Output Capacitance	C_{oss}			132		
Reverse Transfer Capacitance	C_{rss}			70		
Total Gate Charge	Q_g	V_{DS}=–15V I_D=–4A V_{GS}=–10V		10	14	nC
Gate-Source Charge	Q_{gs}			2.2		
Gate-Drain Charge	Q_{gd}			2.0		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=–15V I_D=–1A V_{GS}=–10 V R_{GEN}=6W		7.0	14	ns
Turn-On Rise Time	t_r			13	24	
Turn-Off Delay Time	$t_{d(off)}$			14	25	
Turn-Off Fall Time	t_f			9.0	17	
Continuous Drain-Source Diode Forward Current	I_S				-2.1	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=–2.1A(Note2)		-0.8	-1.2	V

Notes:
1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.

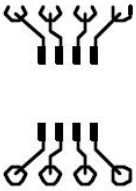
a) 50℃/W when mounted on a 1.0 in^2 pad of 2 oz. copper.



b) 105℃/W when mounted on a 0.04in^2 pad of 2 oz. copper.

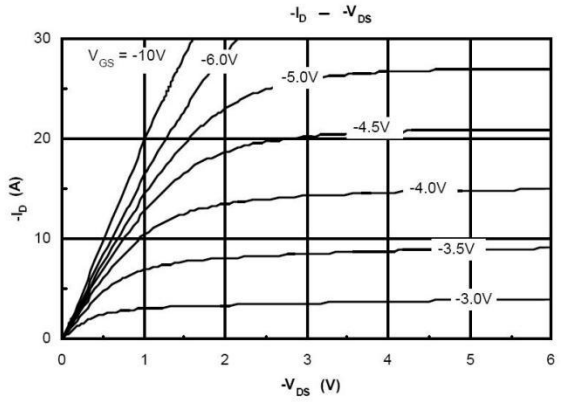


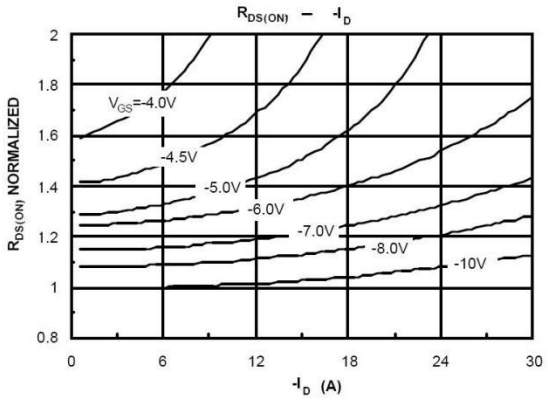
c) 125℃/W when mounted on a minimum pad.

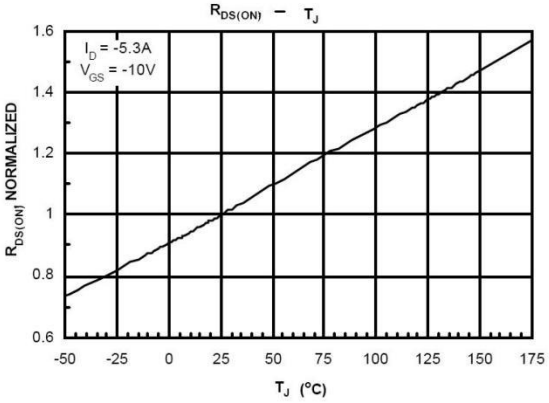


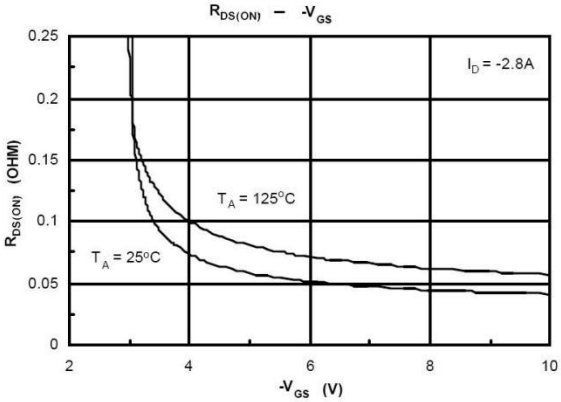
Scale 1 : 1 on letter size paper
2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%

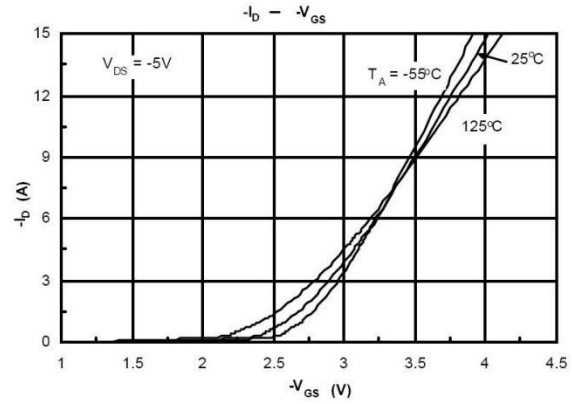
Electrical Characteristic Curve

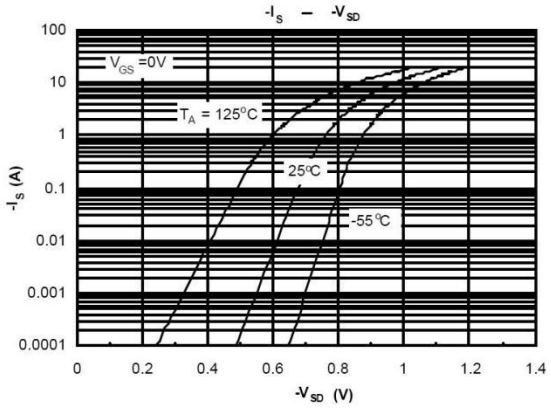












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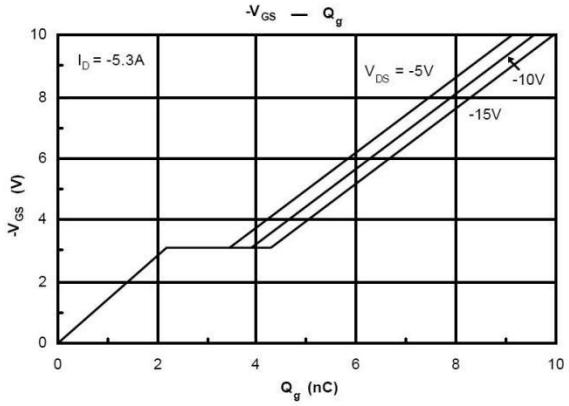
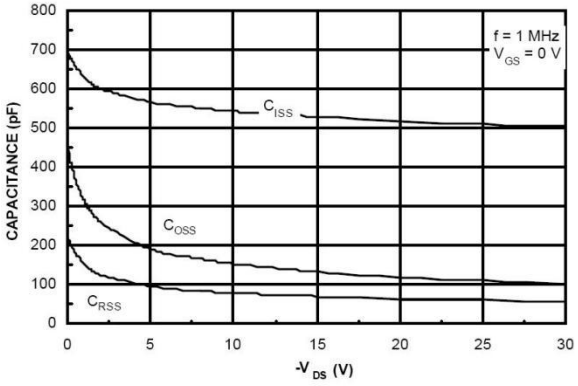
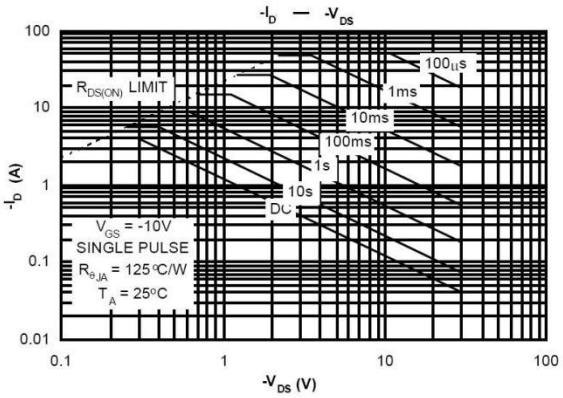
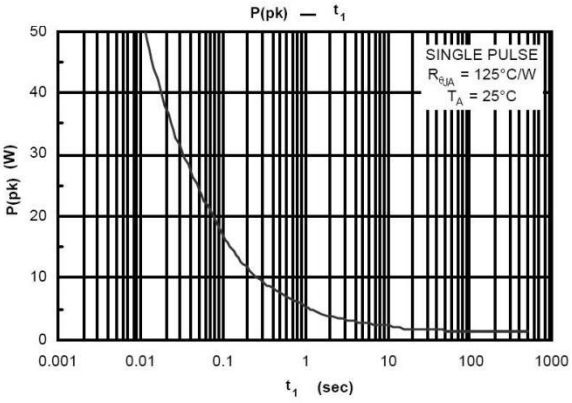
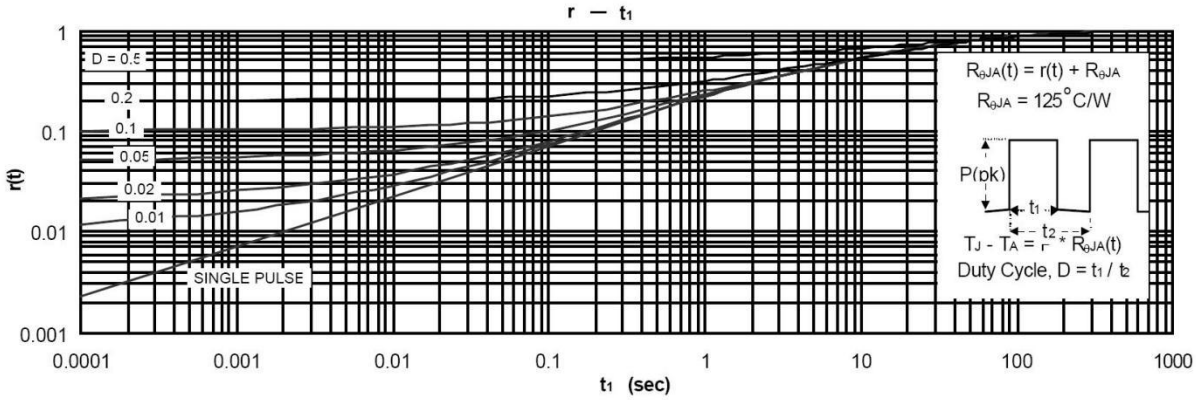










Marking Instructions

Note:

COT: Company Code.

9435: Product Type.

****: Lot No. Code, code change with Lot No.

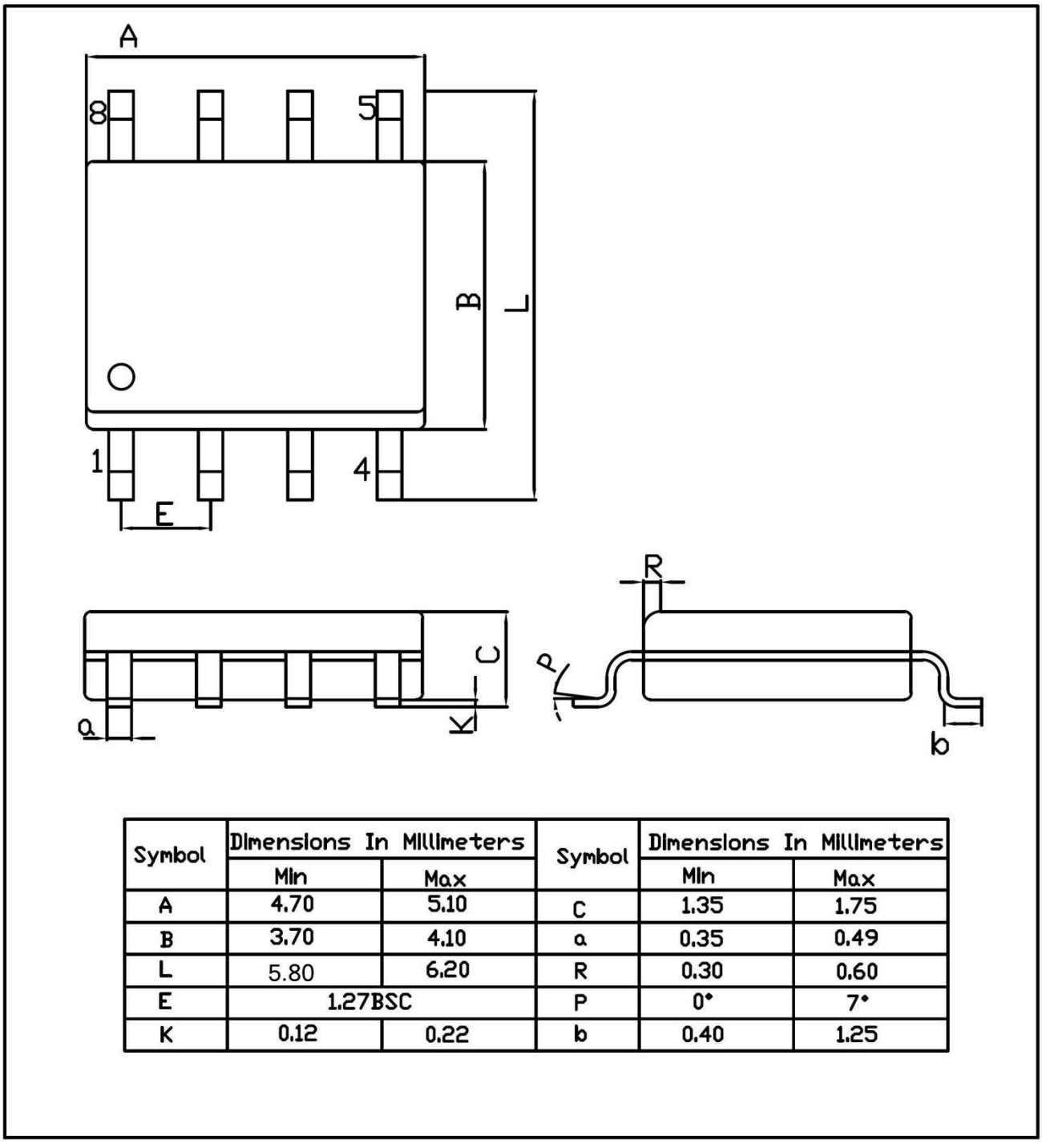
Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit：mm³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOP/ESOP-8	4,000	2	8,000	6	48,000	13″ ×12	360×360×50	380×335×366

Package Outline Dimensions

SOP-8 Unit:mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	a	0.35	0.49
L	5.80	6.20	R	0.30	0.60
E	1.27BSC		P	0°	7°
K	0.12	0.22	b	0.40	1.25