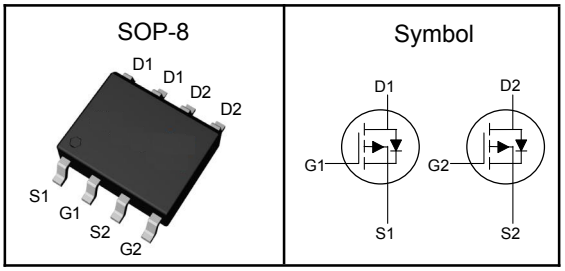
Dual P-Channel Enhancement Mode MOSFET

Features

- Low Rdson for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Pin Description



Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	-30	V
$R_{DS(ON)-Typ}$	15	mΩ
I_D	-7.5	A

Absolute Maximum Ratings(T_A=25℃, Unless Otherwise Noted)

Symbol	Parameter		P-Channel	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested		-18	A
I_D	Continuous Drain Current		-7.5	A
P_D	Maximum Power Dissipation	T_A=25℃	1.5	W
EAS	Single Pulse Avalanche Energy		16	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient	85	℃/W

Note ①: Max. current is limited by bonding wire.

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③: Surface Mounted on 1in² FR-4 board with 1oz.

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Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V	---	---	-1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.0	---	-2.0	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=-10V, I_D=-10A	---	15	18	mΩ
		V_{GS}=-4.5V, I_D=-7A	---	18	23	mΩ
gfs	Forward Transconductance	V_{DS}=-10V, I_D=-5A	---	14	---	S
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, Freq.=1MHz	---	2150	---	pF
C_{oss}	Output Capacitance		---	235	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DS}=-15V , V_{GS}=-10V , R_G=6Ω, I_D=-1A	---	10	---	nS
T_r	Turn-on Rise Time		---	15	---	
$T_{d(off)}$	Turn-off Delay Time		---	90	---	
T_f	Turn-off Fall Time		---	31	---	
Q_g	Total Gate Charge	V_{DS}=-15V , V_{GS}=-10V, I_D=-10A	---	46	---	nC
Q_{gs}	Gate-Source Charge		---	6.5	---	
Q_{gd}	Gate-Drain Charge		---	8.8	---	
Source-Drain Characteristics （T_J=25℃）						
V_{SD}④	Diode Forward Voltage	V_{GS}=0V , I_S=-5A , T_J=25℃	---	---	-1.1	V

Note ④： Pulse test (pulse width≤300us, duty cycle≤2%).

Note ⑤： Guaranteed by design, not subject to production testing.

Typical Characteristics

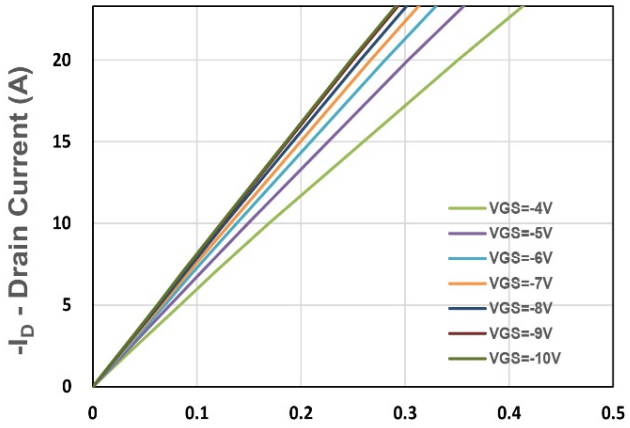

Figure 1. Output Characteristics

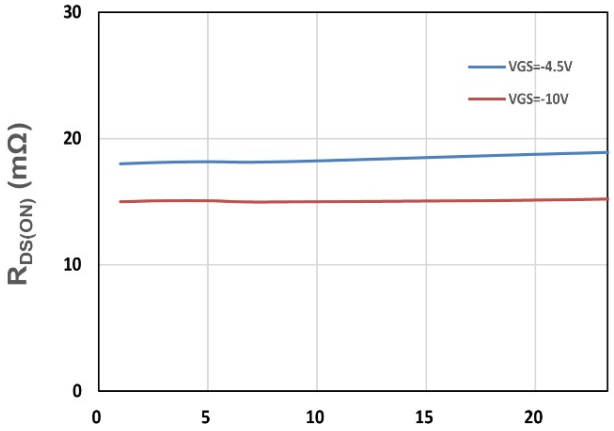

Figure 2. On-Resistance vs. ID

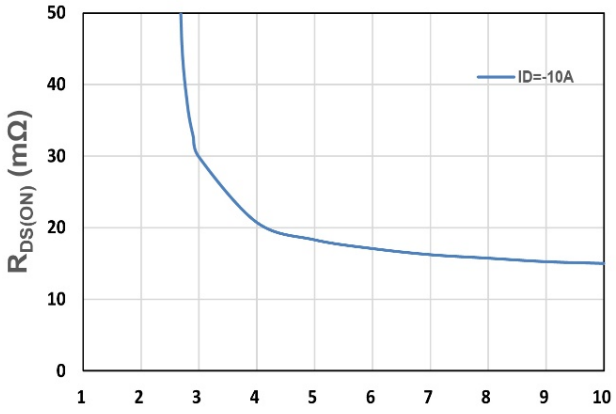

Figure 3. On-Resistance vs. VGS

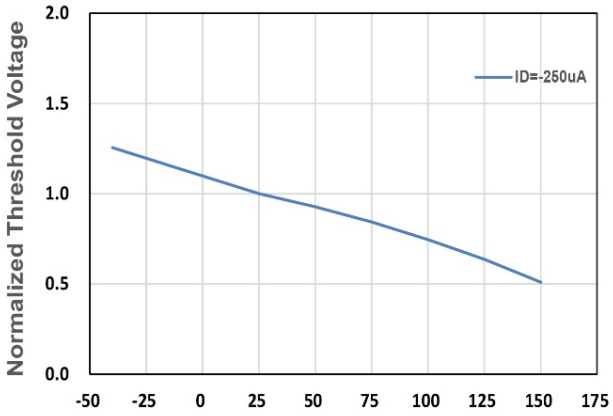

Figure 4. Gate Threshold Voltage

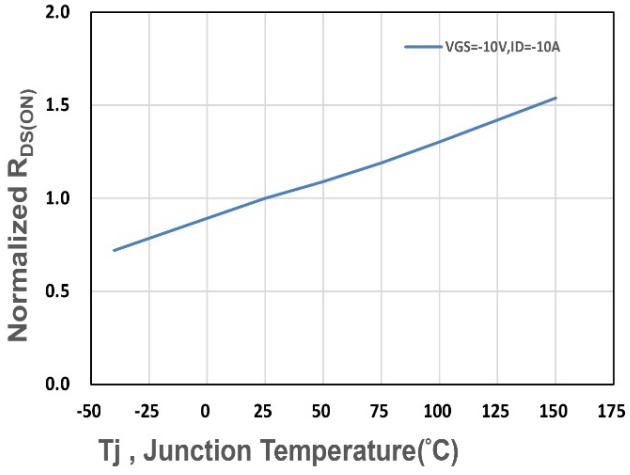

Figure 5. Drain-Source On Resistance

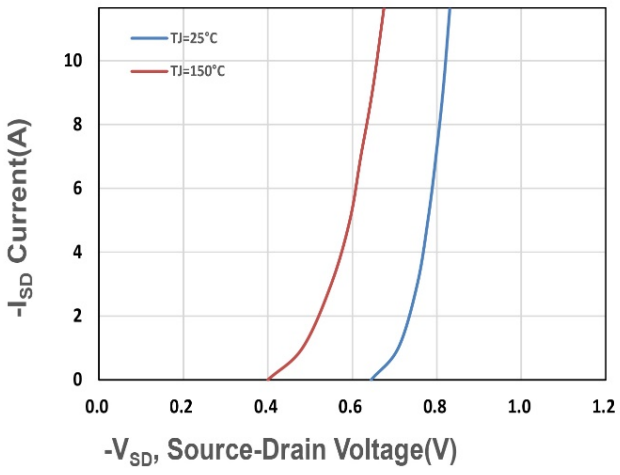

Figure 6. Source-Drain Diode Forward

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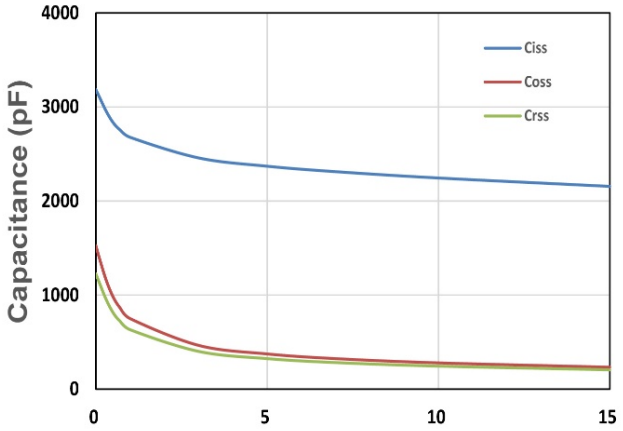

Figure 7. Capacitance

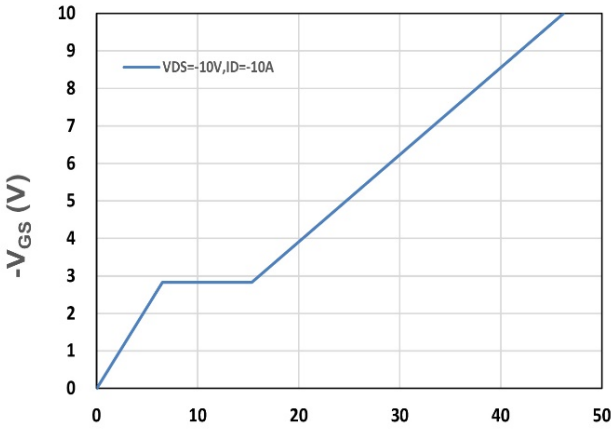

Figure 8. Gate Charge Characteristics

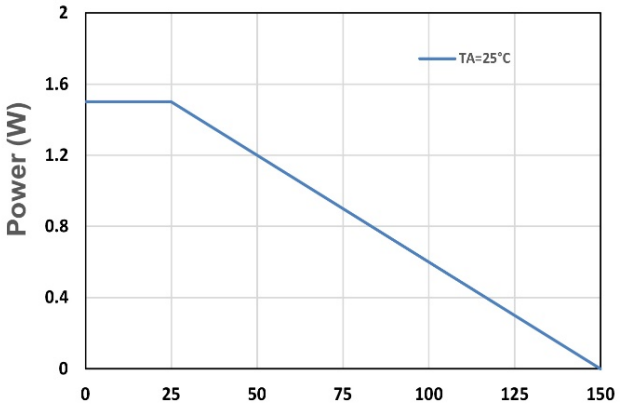

Figure 9. Power Dissipation

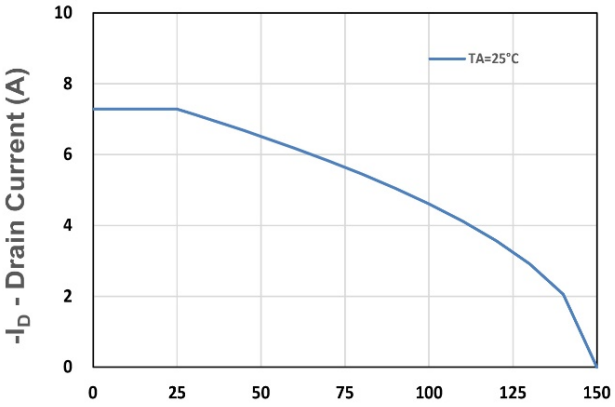

Figure 10. Drain Current

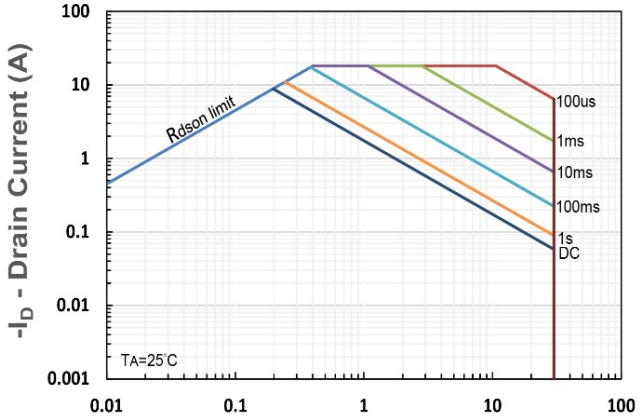

Figure 11. Safe Operating Area

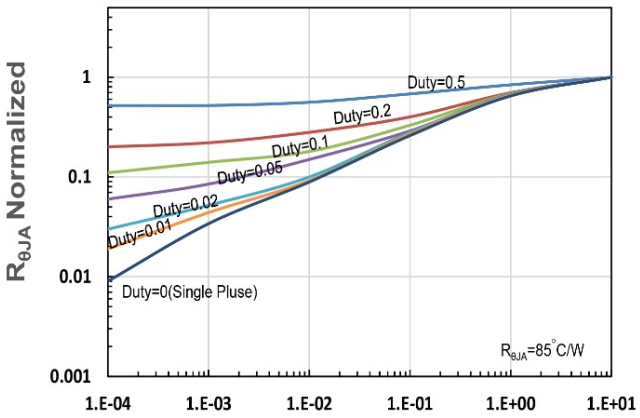

Figure 12. RθJA Transient Thermal Impedance

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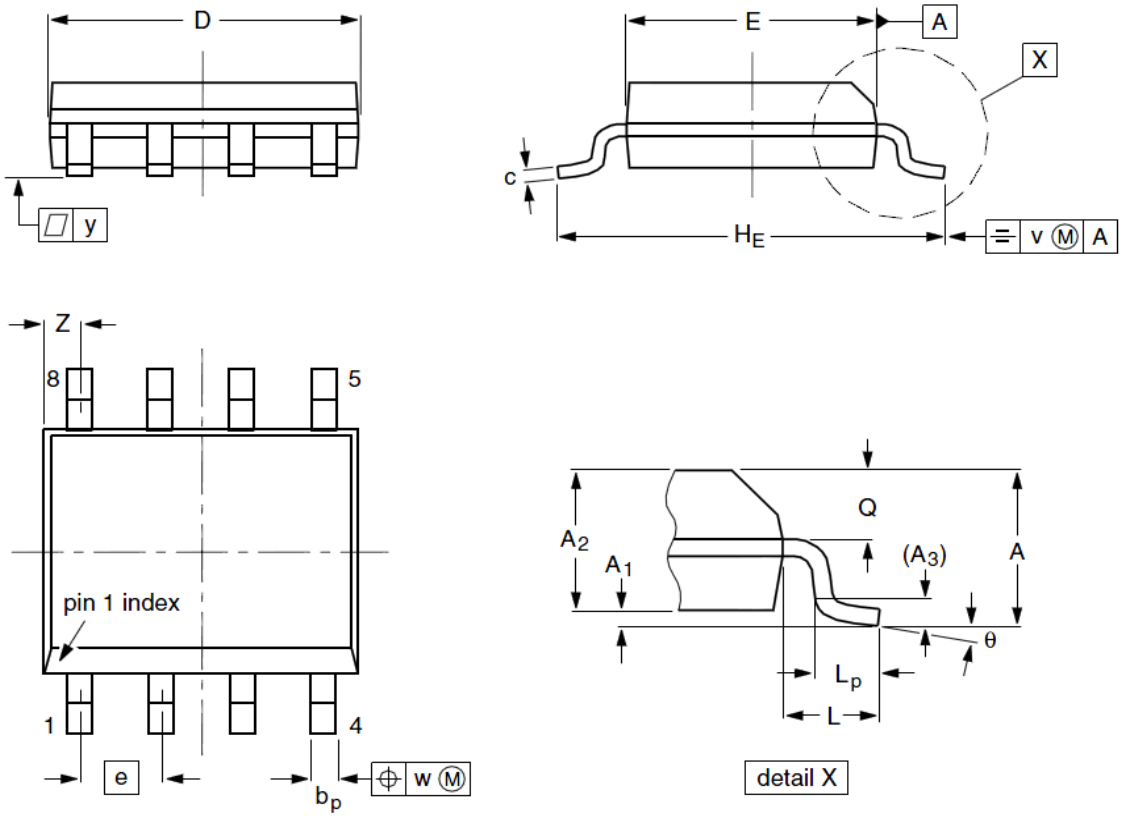
SOP-8 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	1.35	1.55	1.75	A_1	0.0	0.06	0.15
A_2	1.25	1.45	1.65	A_3	--	0.25	--
b_p	0.36	0.42	0.51	c	0.19	0.22	0.25
D	4.70	4.92	5.10	E	3.80	3.90	4.00
e	--	1.27	--	H_E	5.80	6.00	6.20
L	--	1.05	--	L_P	0.40	0.68	1.00
Q	0.60	0.65	0.73	v	--	0.25	--
w	--	0.25	--	y	--	0.10	--
Z	0.30	0.50	0.70	θ	0°		8°