

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

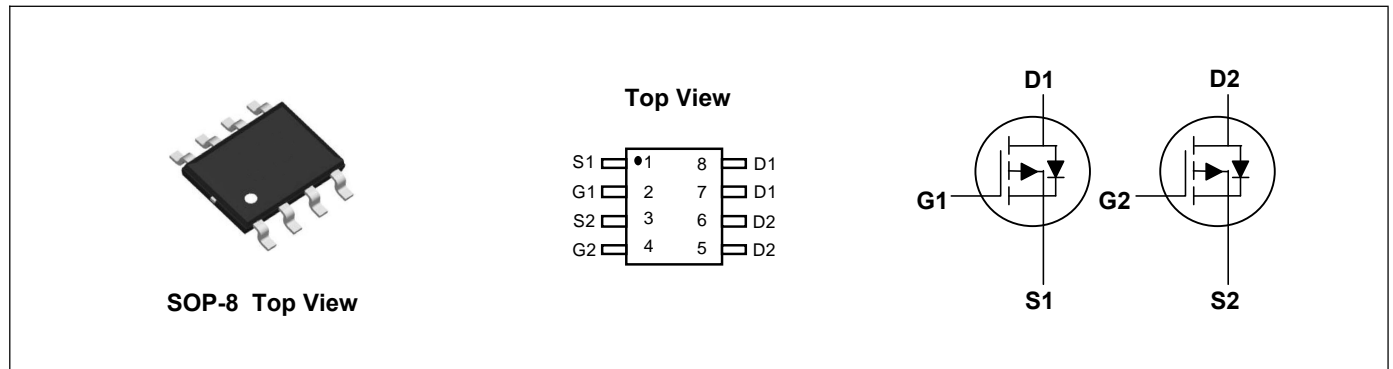
Product Summary



V_{DS}	-30	V
I_D	-5.3	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	49	m Ω
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	85	m Ω

Applications

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



Absolute Maximum Ratings($T_A=25^{\circ}C$, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-5.3	A
Pulsed Drain Current ²	I_{DM}	-20	A
Total Power Dissipation	P_D	2.6	W
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}C$
Operating Junction Temperature Range	T_J	-55 to 150	$^{\circ}C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	---	49	$^{\circ}C/W$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30	---	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-5.3A$	---	43	49	m Ω
		$V_{GS}=-4.5V, I_D=-4.2A$	---	68	85	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1	-1.5	-3	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	---	---	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
Forward Transconductance	gfs	$V_{DS}=-15V, I_D=-4.5A$	---	7	---	S
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-10V, I_D=-5.3A$	---	12	---	nC
Gate-Source Charge	Q_{gs}		---	2.4	---	
Gate-Drain Charge	Q_{gd}		---	3.2	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=-15V, I_D=-1A, V_{GS}=-10V, R_G=6\Omega$	---	8	---	ns
Rise Time	T_r		---	14	---	
Turn-Off Delay Time	$T_{d(off)}$		---	18	---	
Fall Time	T_f		---	10	---	
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$	---	540	---	pF
Output Capacitance	C_{oss}		---	150	---	
Reverse Transfer Capacitance	C_{rss}		---	75	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage ¹	V_{SD}	$V_{GS}=0V, I_S=-5.3A, T_J=25^{\circ}\text{C}$	---	---	-1.2	V

Note:

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Typical Characteristics

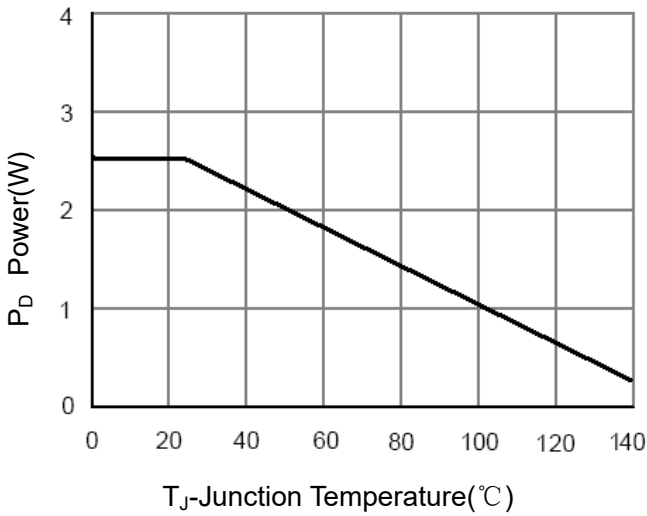


Figure 1 Power Dissipation

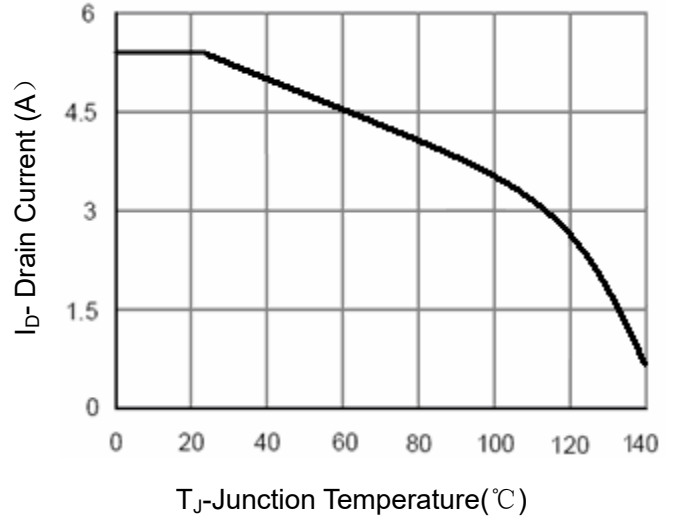


Figure 2 Drain Current

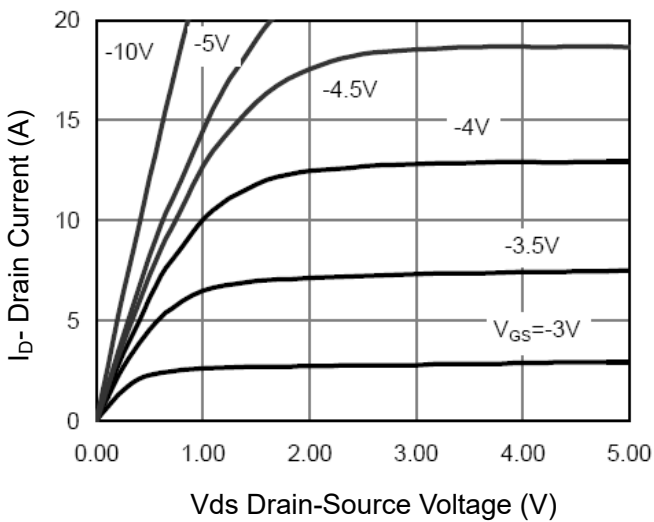


Figure 3 Output Characteristics

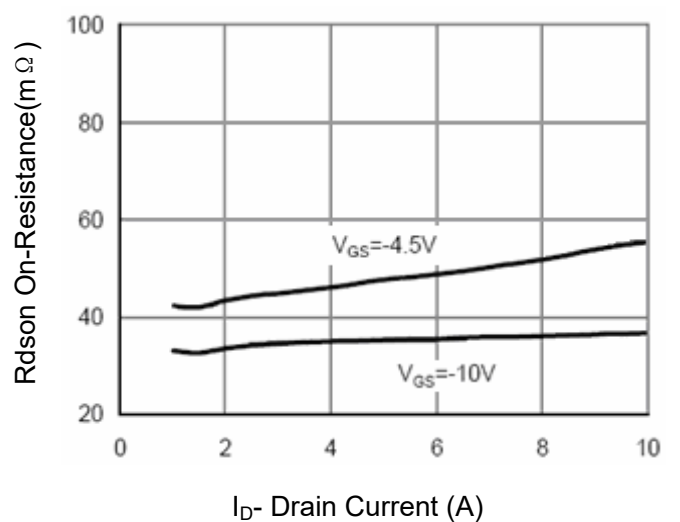


Figure 4 Drain-Source On-Resistance

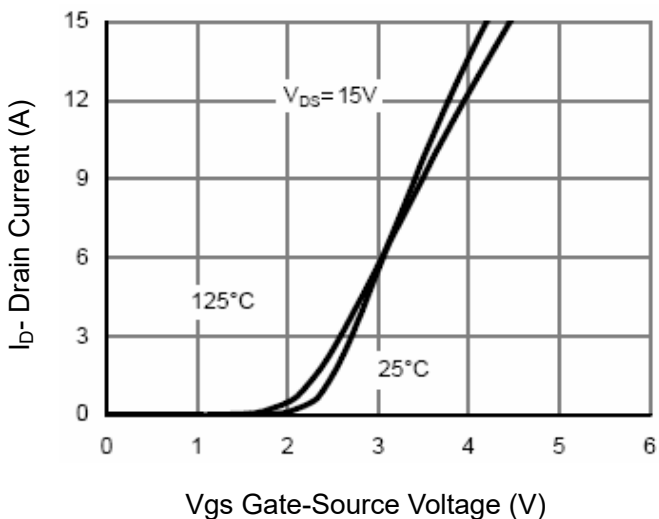


Figure 5 Transfer Characteristics

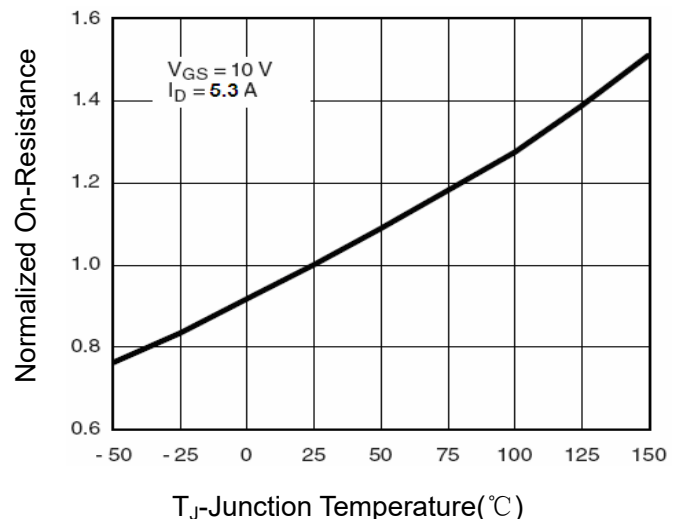


Figure 6 Drain-Source On-Resistance

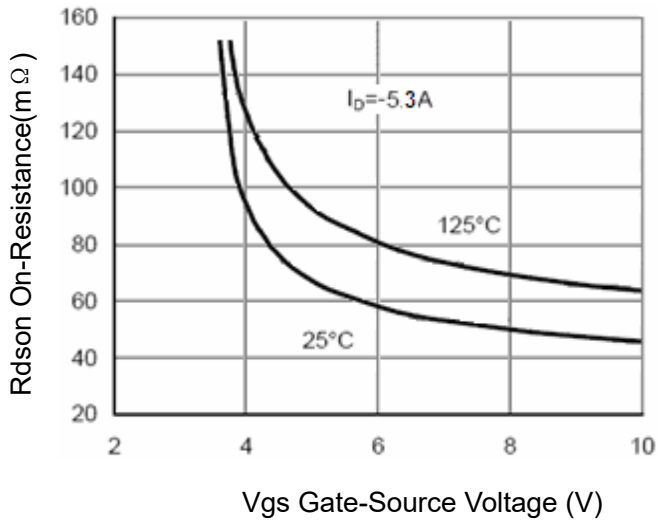


Figure 7 Rdson vs Vgs

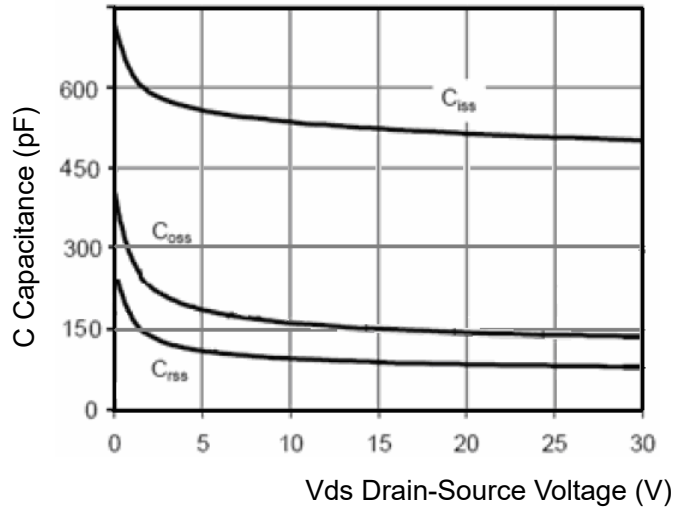


Figure 8 Capacitance vs Vds

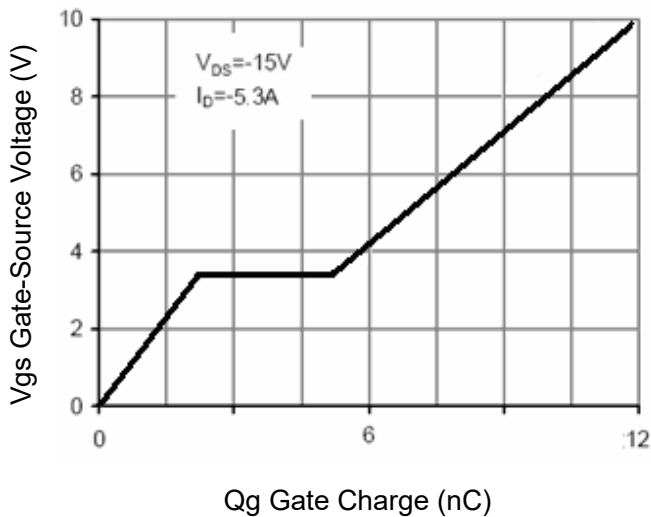


Figure 9 Gate Charge

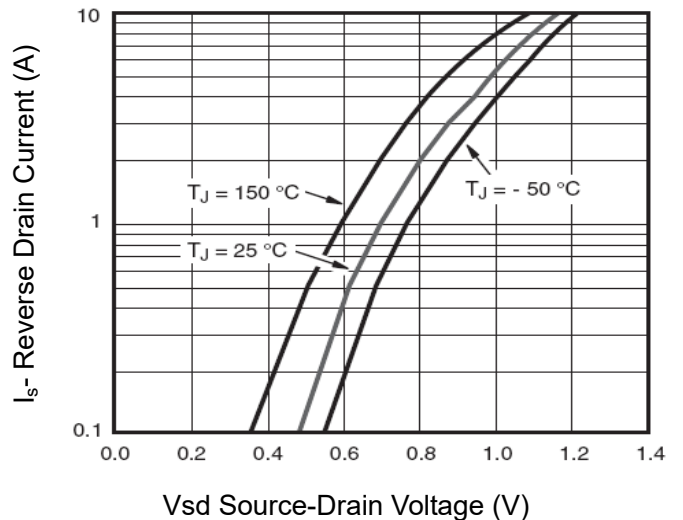


Figure 10 Source- Drain Diode Forward

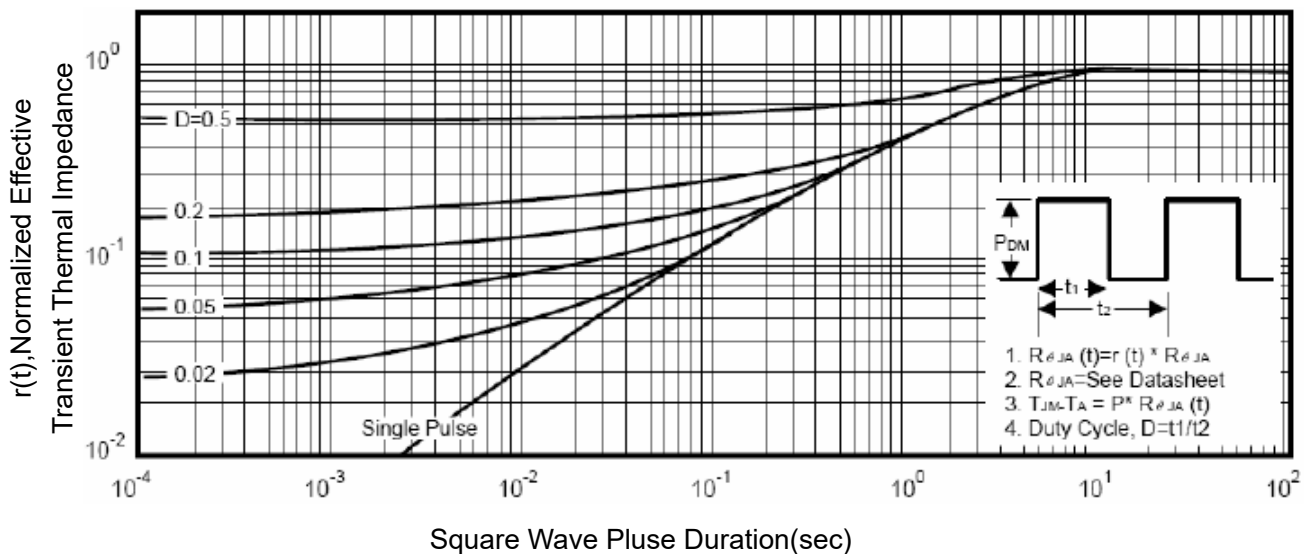


Figure 11 Normalized Maximum Transient Thermal Impedance

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	A₁	0.10	0.18	0.25
A₂	1.25	1.45	1.65	A₃	--	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°