

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

KEY FEATURES

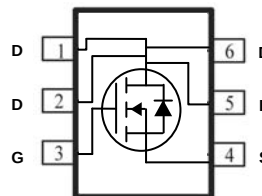
- Low $R_{DS(on)}$ trench technology.
- Low thermal impedance.
- Fast switching speed.

TYPICAL APPLICATIONS

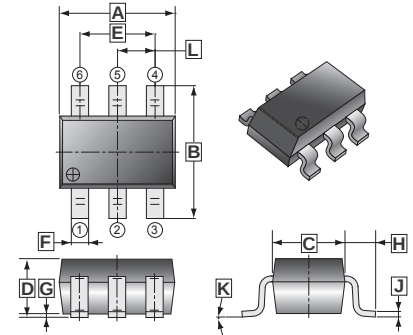
- White LED boost converters.
- Automotive Systems
- Industrial DC/DC Conversion Circuits

PRODUCT SUMMARY

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$V_{DS}(V)$	$R_{DS(on)} (m\Omega)$	$I_D(A)$
150	700@ $V_{GS}=10V$	1.2
	1200@ $V_{GS}=4.5V$	1



TSOP-6



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

ABSOLUTE MAXIMUM RATINGS($T_A=25^\circ C$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Ratings	Unit
		Maximum	
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ^a	I_D	$T_A=25^\circ C$ 1.2	A
		$T_A=70^\circ C$ 1	
Pulsed Drain Current ^b	I_{DM}	± 10	A
Continuous Source Current (Diode Conduction) ^a	I_S	2.5	A
Power Dissipation ^a	P_D	$T_A=25^\circ C$ 2	W
		$T_A=70^\circ C$ 1.3	
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 ~ 150	$^\circ C$

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Maximum	Unit
Maximum Junction to Ambient ^a	$R_{\theta JA}$	$t \leq 10 \text{ sec}$ 62.5	$^\circ C / W$
		Steady State 110	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature.

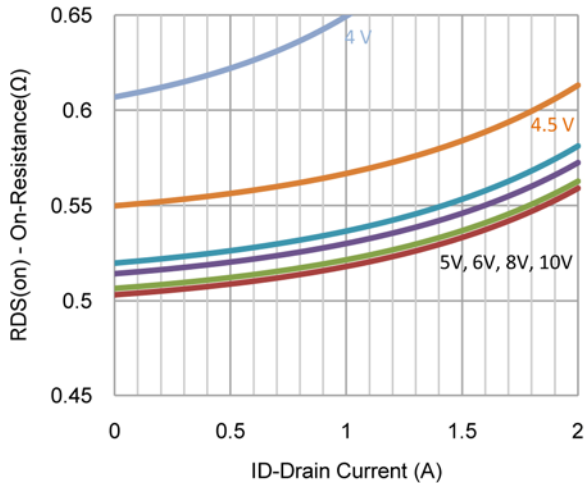
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	3.5	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	± 100	μA	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=120\text{V}$, $V_{GS}=0\text{V}$
		-	-	10		$V_{DS}=120\text{V}$, $V_{GS}=0\text{V}$, $T_J=55^\circ\text{C}$
On-State Drain Current ^a	$I_{D(on)}$	10	-	-	A	$V_{DS}=5\text{V}$, $V_{GS}=10\text{V}$
Drain-Source On-Resistance ^a	$R_{DS(ON)}$	-	-	700	m Ω	$V_{GS}=10\text{V}$, $I_D=1.2\text{A}$
		-	-	1200		$V_{GS}=4.5\text{V}$, $I_D=1\text{A}$
Forward Transconductance ^a	g_{fs}	-	11	-	S	$V_{DS}=15\text{V}$, $I_D=1.2\text{A}$
Diode Forward Voltage ^a	V_{SD}	-	0.8	-	V	$I_S=1.25\text{A}$, $V_{GS}=0\text{V}$
DYNAMIC ^b						
Total Gate Charge	Q_g	-	2.5	-	nC	$V_{DS}=10\text{V}$, $V_{GS}=4.5\text{V}$, $I_D=1\text{A}$
Gate-Source Charge	Q_{gs}	-	1	-		
Gate-Drain Charge	Q_{gd}	-	0.8	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=10\text{V}$, $V_{GEN}=10\text{V}$, $R_L=10\Omega$, $I_D=1\text{A}$, $R_{GEN}=6\Omega$
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	6	-		
Fall Time	T_f	-	4	-		
Input Capacitance	C_{iss}	-	320	-	pF	$V_{DS}=15\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	37	-		
Reverse Transfer Capacitance	C_{rss}	-	20	-		

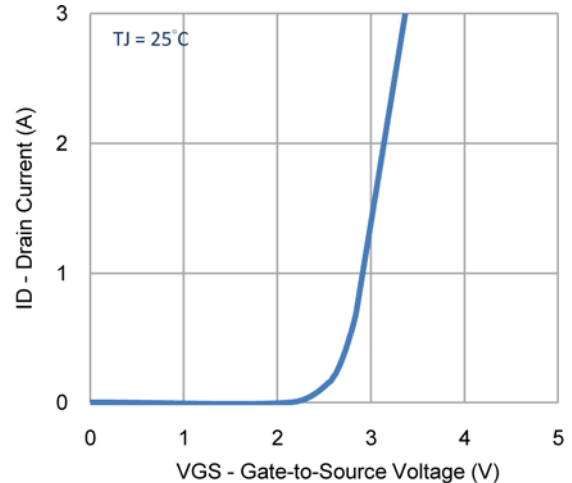
Notes

- Pulse test : $PW \leq 300 \mu\text{s}$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

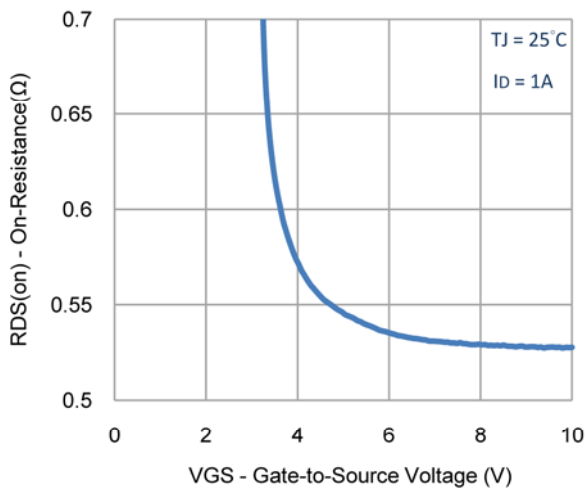
CHARACTERISTIC CURVES



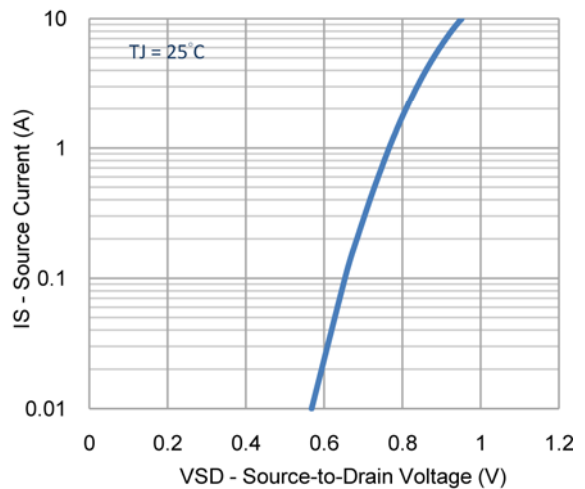
1. On-Resistance vs. Drain Current



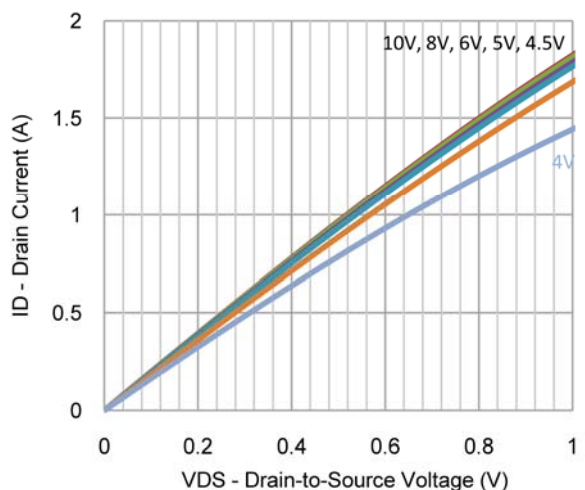
2. Transfer Characteristics



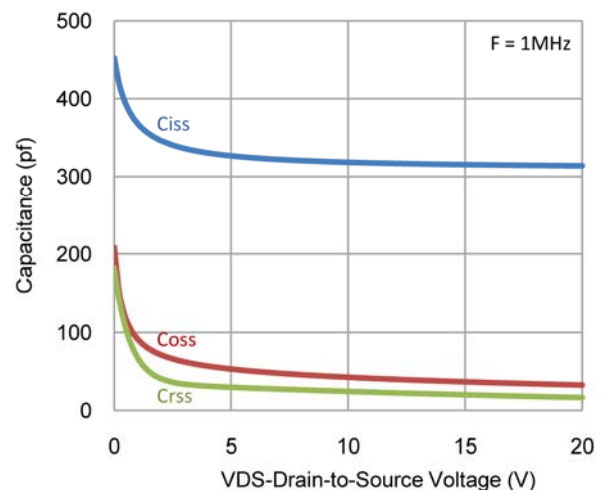
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

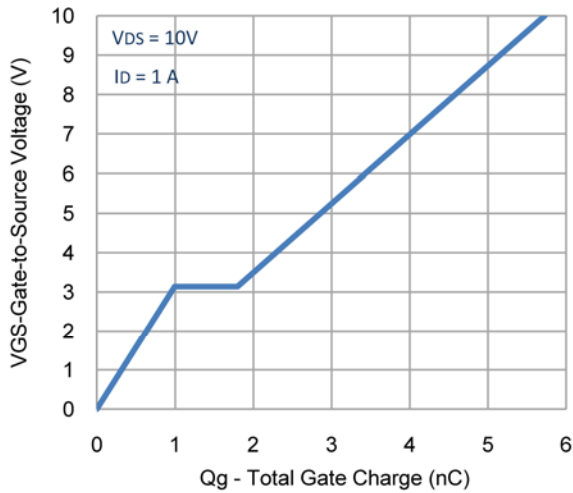


5. Output Characteristics

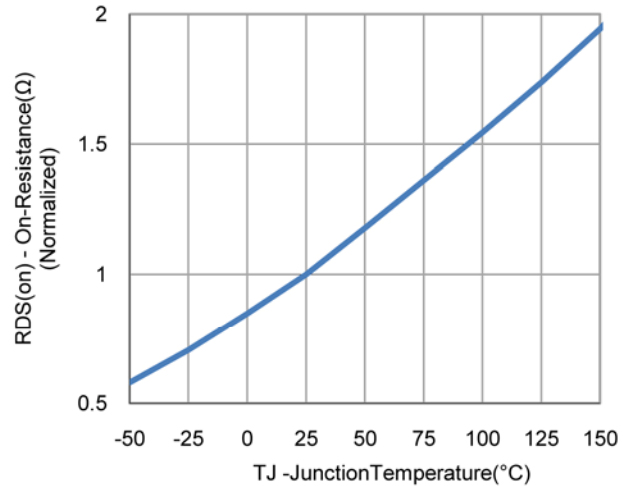


6. Capacitance

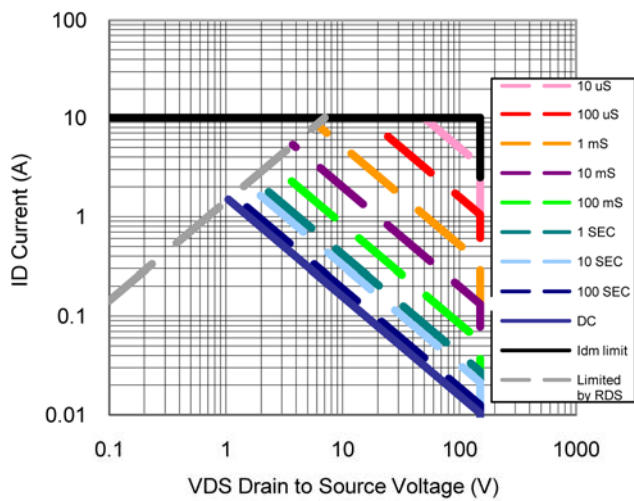
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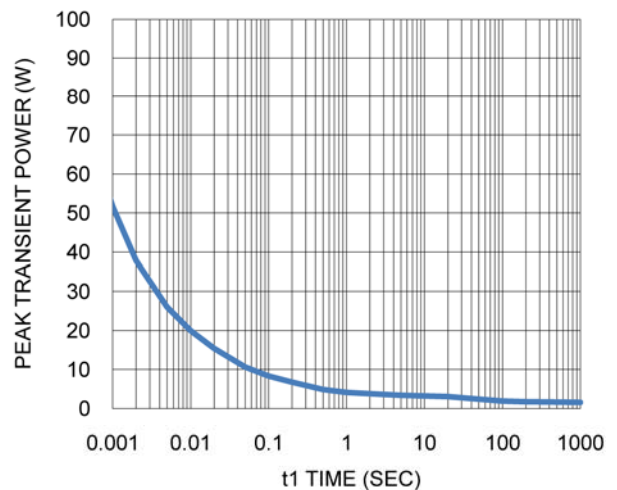
7. Gate Charge



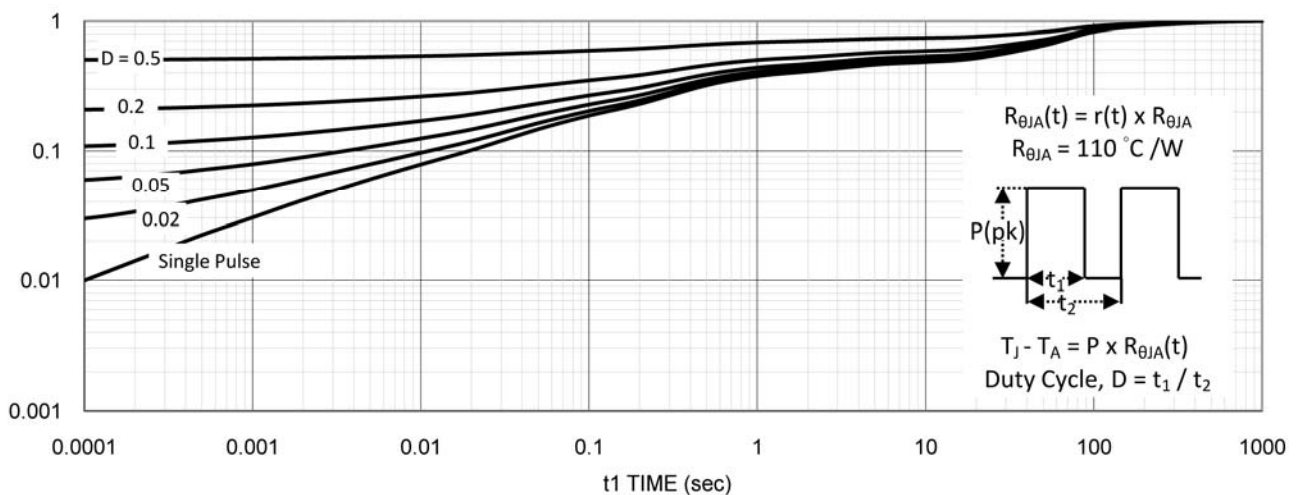
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient