Elektronische Bauelemente

SSG4520H

N-Ch: 6.6A, 20V, $R_{DS(ON)}$ 47 mΩ
P-Ch: -5.2A, -20V, $R_{DS(ON)}$ 79 mΩ
N & P-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

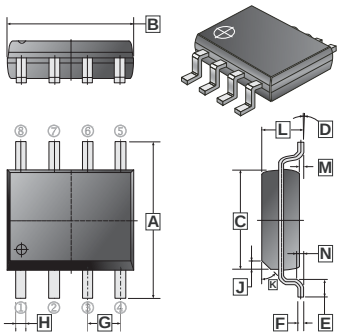
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe SOP-8 saves board space
- Fast switching speed
- High performance trench technology

APPLICATION

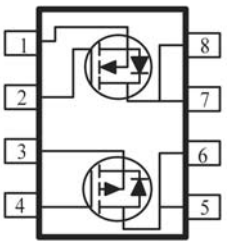
DC-DC converters and power management in portable and battery-powered products such as computers,. printers, PCMCIA cards, cellular and cordless telephones

SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.8	6.20	H	0.35	0.51
B	4.80	5.00	J	0.375 REF.	
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.50	0.93	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				

Top View



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

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

Parameter		Symbol	Rating		Unit
			N-CH	P-CH	
Drain-Source Voltage		V_{DS}	20	-20	V
Gate-Source Voltage		V_{GS}	±8	±8	V
Continuous Drain Current [1]	T_A = 25°C	I_D	6.6	-5.2	A
	T_A = 70°C		5	-3.8	A
Pulsed Drain Current [2]		I_{DM}	20	-20	A
Continuous Source Current (Diode Conduction) [1]		I_S	2.2	-2.2	A
Total Power Dissipation [1]	T_A = 25°C	P_D	2.1		W
	T_A = 70°C		1.3		W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 ~ 150		°C
Thermal Resistance Ratings					
Maximum Junction-to-Ambient [1]	t≦10 sec	$R_{\theta JA}$	62.5		°C / W
	Steady State		110		°C / W

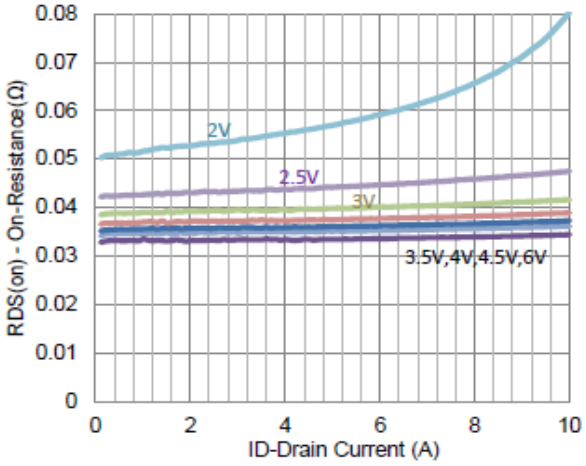
Notes:
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

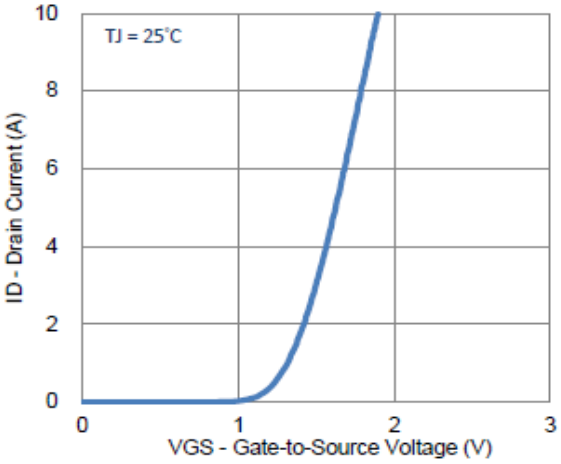
Parameter	Symbol	Ch	Min.	Typ.	Max.	Unit	Teat Conditions
Static							
Gate Threshold Voltage	$V_{GS(th)}$	N	1	-	-	V	V_{DS}=V_{GS}, I_D=250μA
		P	-1	-	-		V_{DS}=V_{GS}, I_D= -250μA
Gate-Body Leakage	I_{GSS}	N	-	-	±100	nA	V_{DS}=0, V_{GS}=8V
		P	-	-	±100		V_{DS}=0, V_{GS}= -8V
Zero Gate Voltage Drain Current	I_{DSS}	N	-	-	1	μA	V_{DS}=8V, V_{GS}=0
		P	-	-	-1		V_{DS}= -8V, V_{GS}=0
On-State Drain Current [1]	$I_{D(on)}$	N	10	-	-	A	V_{DS}=5V, V_{GS}=4.5V
		P	-10	-	-		V_{DS}= -5V, V_{GS}= -4.5V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	N	-	-	47	mΩ	V_{GS}=4.5V, I_D=5.3A
			-	-	55		V_{GS}=2.5V, I_D=5A
		P	-	-	79		V_{GS}= -4.5V, I_D= -4.2A
			-	-	110		V_{GS}= -2.5V, I_D= -3.8A
Diode Forward Voltage	V_{SD}	N		0.7		V	V_{GS}=0, I_S=1.1A
		P		-0.73			V_{GS}=0, I_S= -1.1A
Forward Transconductance [1]	g_{fs}	N	-	10	-	S	V_{DS}=10V, I_D=5.3A
		P	-	10	-		V_{DS}= -10V, I_D= -4.2A
Dynamic [2]							
Input Capacitance	C_{iss}	N		439		pF	N-Channel V_{DS}=15V, V_{GS}=0, f=1MHz P-Channel V_{DS}= -15V, V_{GS}=0, f=1MHz
		P		683			
Output Capacitance	C_{oss}	N		78			
		P		90			
Reverse Transfer Capacitance	C_{rss}	N		68			
		P		75			
Total Gate Charge	Q_g	N	-	6	-	nC	N-Channel I_D=5.3A, V_{DS}=10V, V_{GS}=4.5V P-Channel I_D= -4.2A, V_{DS}= -10V, V_{GS}= -4.5V
		P	-	11	-		
Gate-Source Charge	Q_{gs}	N	-	0.9	-		
		P	-	2.8	-		
Gate-Drain Charge	Q_{gd}	N	-	2.1	-		
		P	-	2.7	-		
Turn-On Delay Time	$T_{d(on)}$	N	-	7	-	nS	N-Channel V_{DD}=10V, V_{GEN}=4.5V I_D=5.3A, R_{GEN}=6Ω, R_L=1.8Ω P-Channel V_{DD}= -10V, V_{GEN}= -4.5V I_D= -4.2A, R_{GEN}=6Ω, R_L=2.3Ω
		P	-	10	-		
Rise Time	T_r	N	-	24	-		
		P	-	20	-		
Turn-Off Delay Time	$T_{d(off)}$	N	-	35	-		
		P	-	49	-		
Fall Time	T_f	N	-	19	-		
		P	-	21	-		

Notes:
1. Pulse test：PW≦300μs duty cycle≦2%.
2. Guaranteed by design, not subject to production testing.

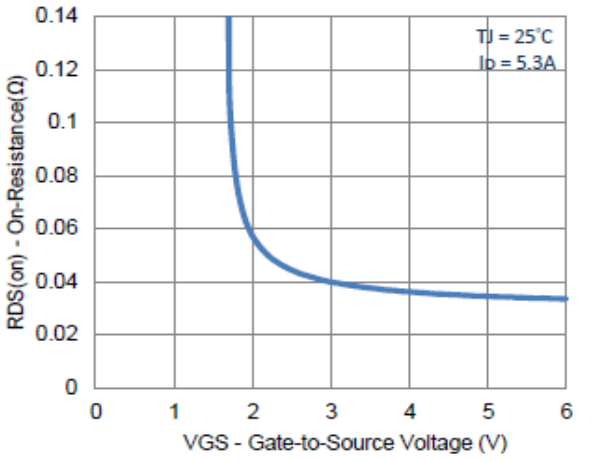
CHARACTERISTIC CURVES (N-Channel)



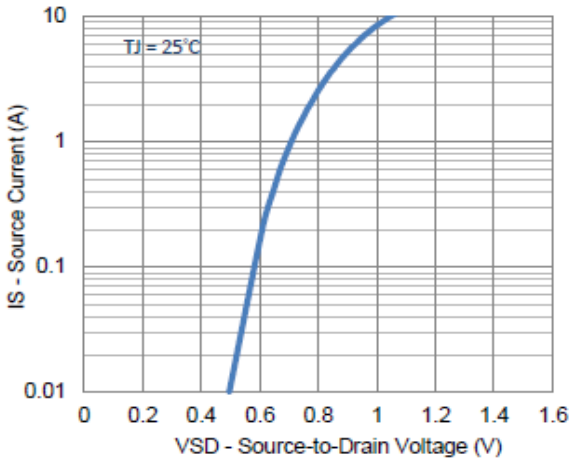
1. On-Resistance vs. Drain Current



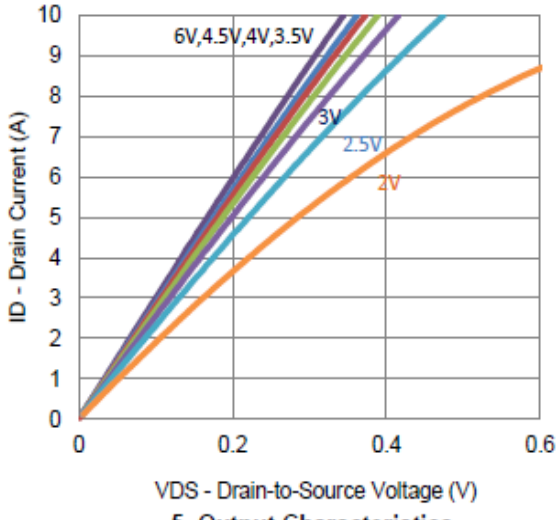
2. Transfer Characteristics



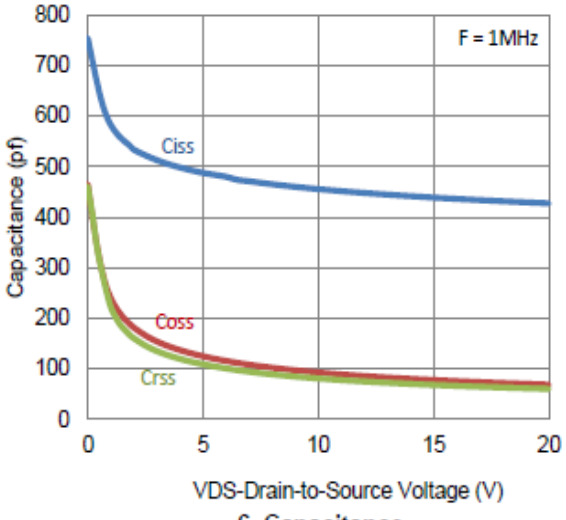
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

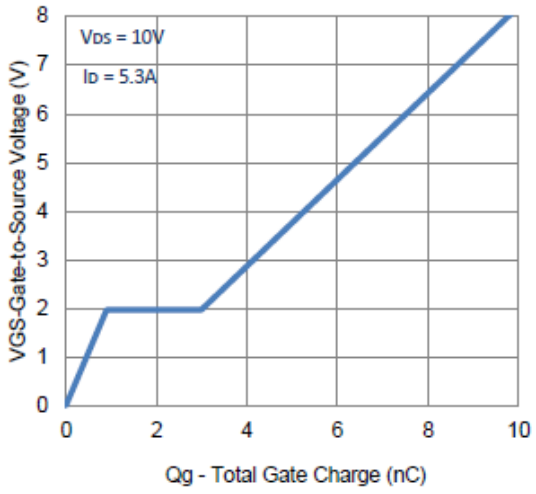


5. Output Characteristics

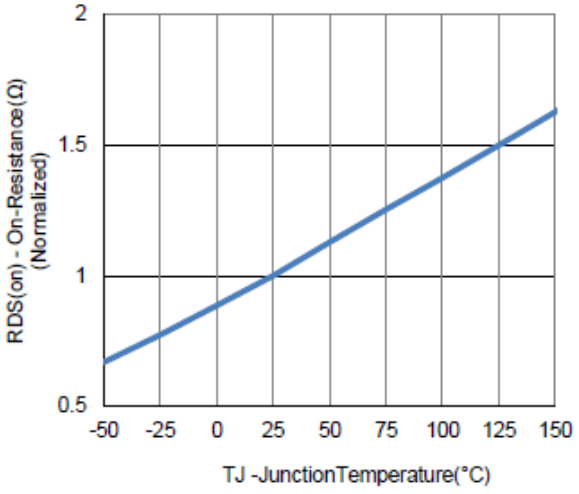


6. Capacitance

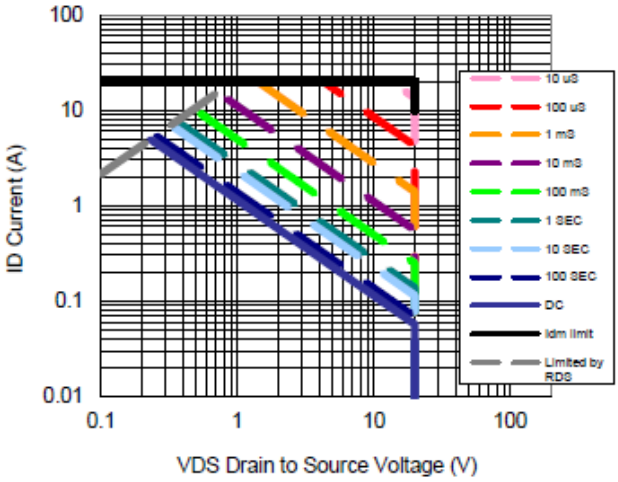
CHARACTERISTIC CURVES



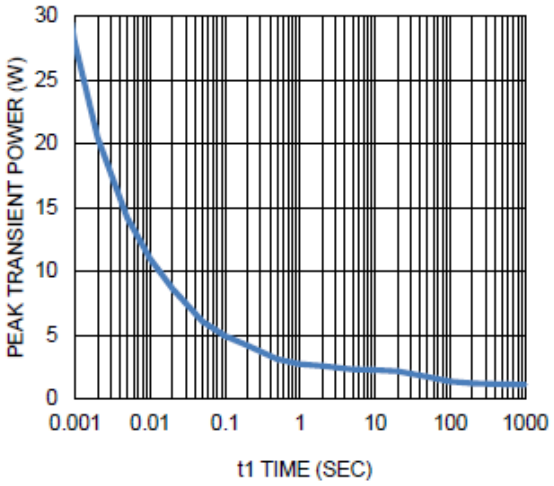
7. Gate Charge



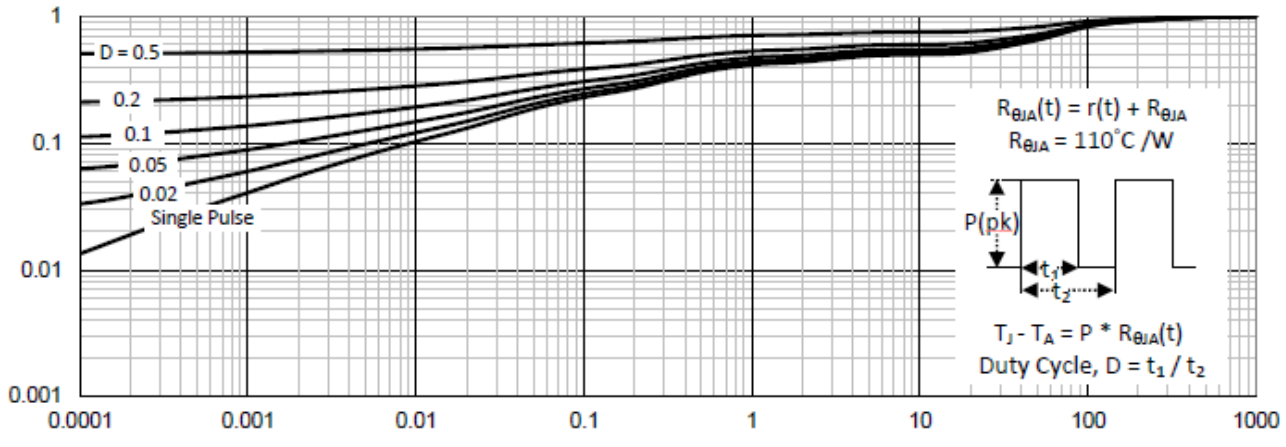
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

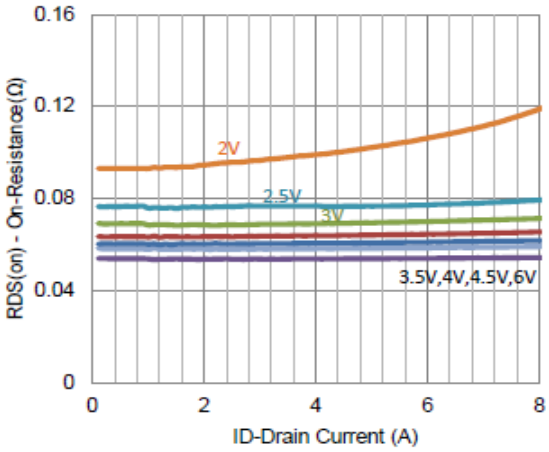


10. Single Pulse Maximum Power Dissipation

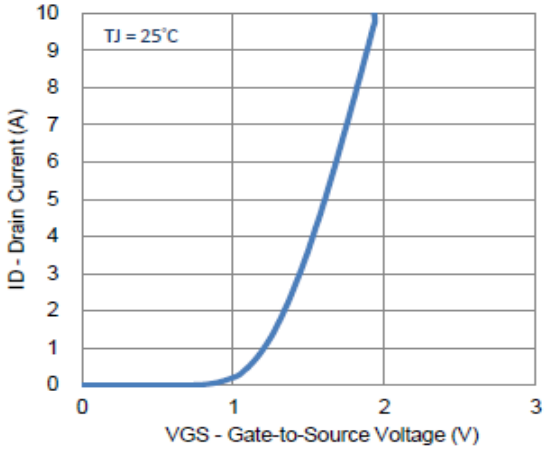


11. Normalized Thermal Transient Junction to Ambient

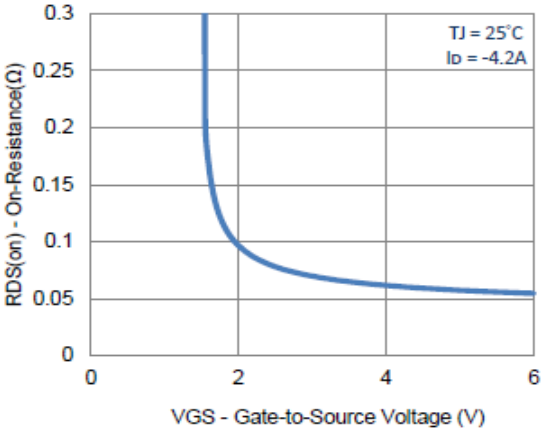
CHARACTERISTIC CURVES (P-Channel)



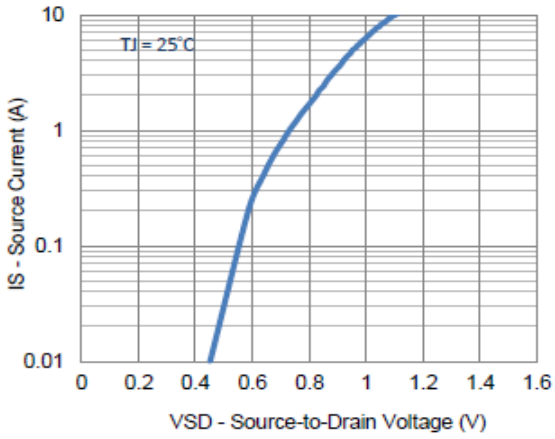
1. On-Resistance vs. Drain Current



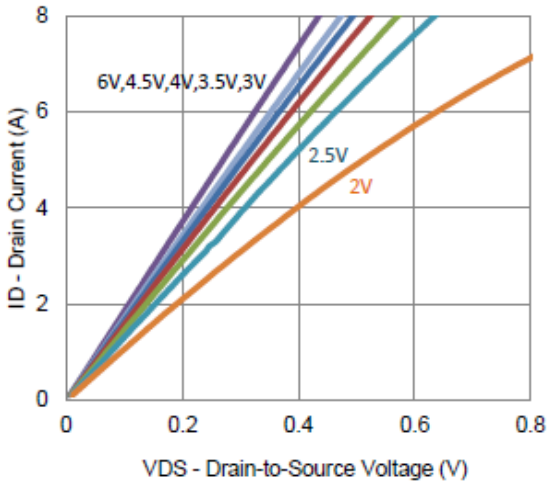
2. Transfer Characteristics



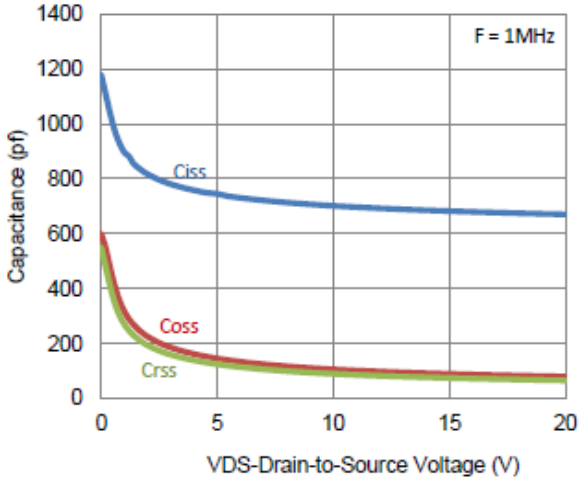
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

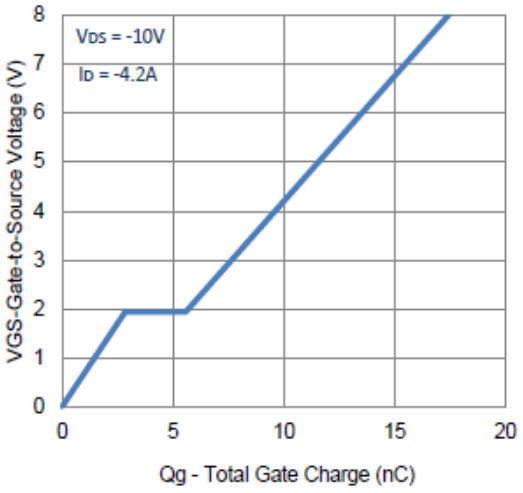


5. Output Characteristics

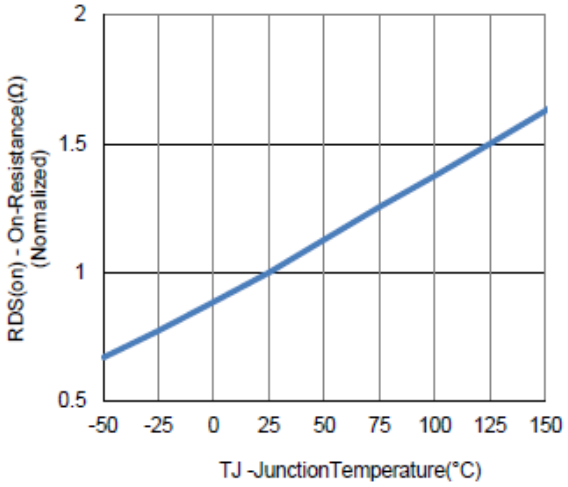


6. Capacitance

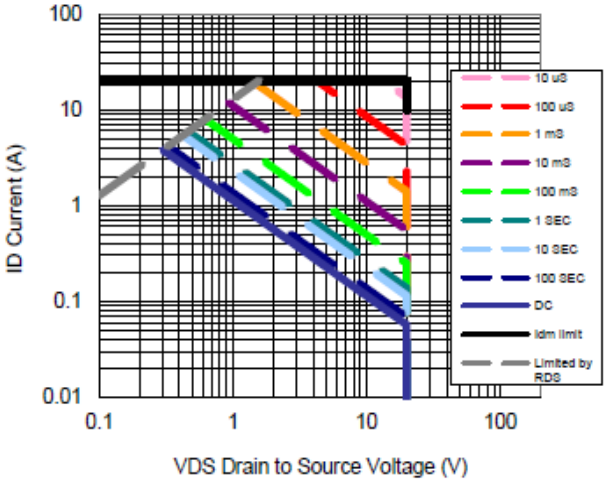
CHARACTERISTIC CURVES



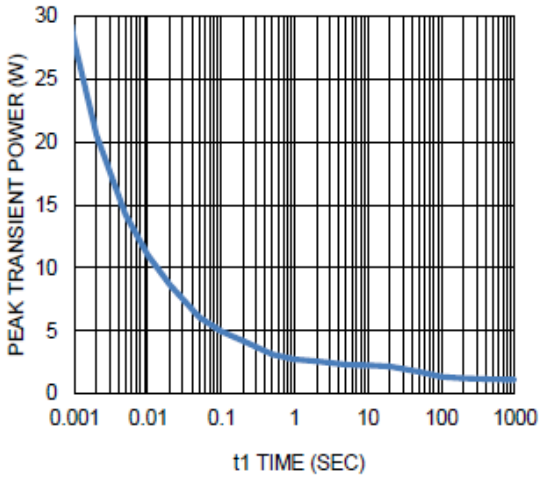
7. Gate Charge



8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



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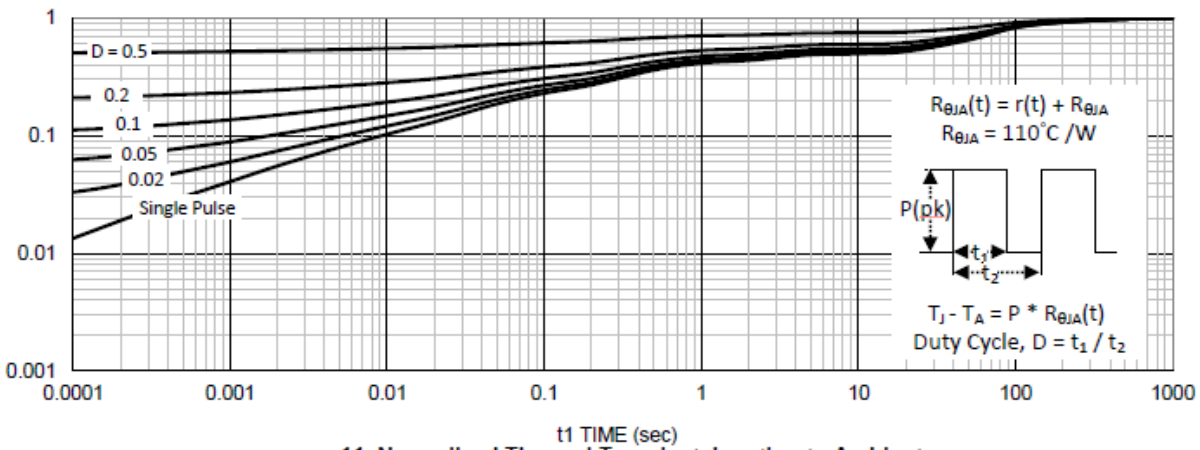

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