Elektronische Bauelemente

SSD30P06-45D

P-Ch Enhancement Mode Power MOSFET

-25A, -60V, $R_{DS(ON)}$ 54mΩ

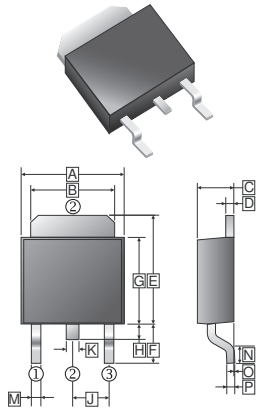
RoHS Compliant Product

A suffix of "-C" specifies halogen free

DESCRIPTION

These miniature surface mount MOSFETs utilize high cell density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy and makes this device ideal for the use in power management circuitry. Typical applications are PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

TO-252(D-Pack)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.90	J	2.186	2.386
B	4.95	5.50	K	0.64	1.14
C	2.10	2.50	M	0.50	1.14
D	0.43	0.9	N	1.3	1.8
E	6.0	7.5	O	0	0.13
F	2.90 REF		P	0.58REF.	
G	5.40	6.40			
H	0.60	1.20			

FEATURES

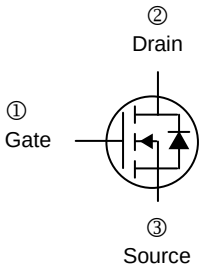
- Low $R_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

APPLICATION

- White LED boost converters
- Automative systems
- Industrial DC/DC conversion circuits

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch



ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_C=25℃	I_D	-25	A
Pulsed Drain Current [2]		I_{DM}	-100	A
Continuous Source Current (Diode Conduction) [1]		I_S	-40	A
Total Power Dissipation [1]	T_C=25℃	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~175	℃
Thermal Resistance Rating				
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	40	℃/ W
Maximum Thermal Resistance from Junction to Case		$R_{\theta JC}$	3	℃/ W

Notes :

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

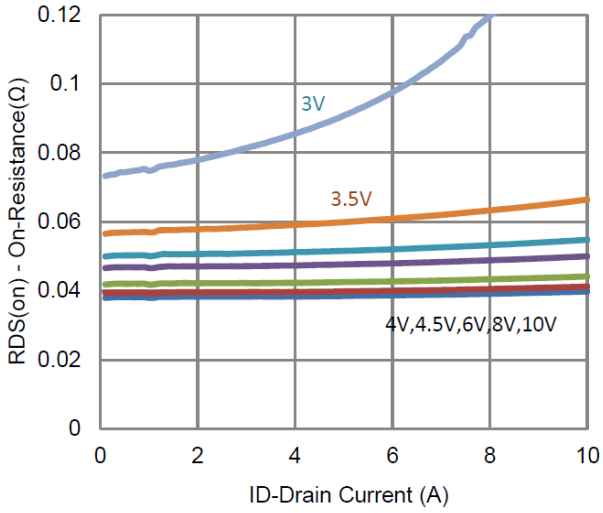
ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-	V	V_{DS}=V_{GS}, I_D = -250μA
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -48V, V_{GS}=0
		-	-	-25		V_{DS}= -48V, V_{GS}=0, T_J=55℃
On-State Drain Current [1]	$I_{D(on)}$	-40	-	-	A	V_{DS}= -5V, V_{GS}= -10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	54	mΩ	V_{GS}= -10V, I_D= -10A
		-	-	69		V_{GS}= -4.5V, I_D= -8A
Forward Transconductance [1]	g_{fs}	-	22	-	S	V_{DS}= -15V, I_D= -10A
Diode Forward Voltage [1]	V_{SD}	-	-1.03	-	V	I_S= -20A, V_{GS}=0
Dynamic						
Total Gate Charge	Q_g	-	20	-	nC	V_{DS}= -30V V_{GS}= -4.5V I_D= -10A
Gate-Source Charge	Q_{gs}	-	5.2	-		
Gate-Drain Charge	Q_{gd}	-	8.1	-		
Turn-on Delay Time	$T_{d(on)}$	-	10	-	nS	V_{DD}= -30V V_{GEN}= -10V R_L=3Ω R_{GEN}=6Ω I_D= -10A
Rise Time	T_r	-	19	-		
Turn-off Delay Time	$T_{d(off)}$	-	62	-		
Fall Time	T_f	-	20	-		
Input Capacitance	C_{iss}	-	1816	-	pF	V_{DS}= -15V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	128	-		
Reverse Transfer Capacitance	C_{rss}	-	111	-		

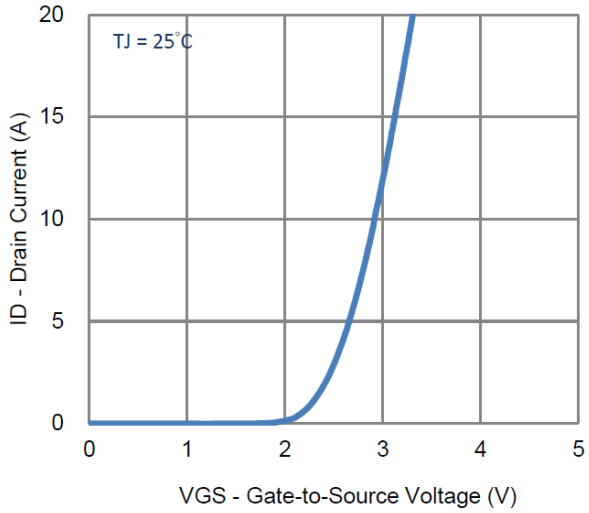
Notes:

1. Pulse test：Pulse width≦300μs, duty cycle≦2%.

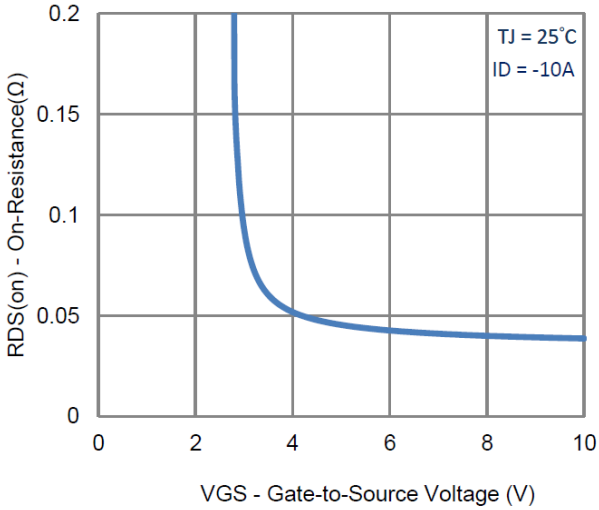
CHARACTERISTIC CURVE



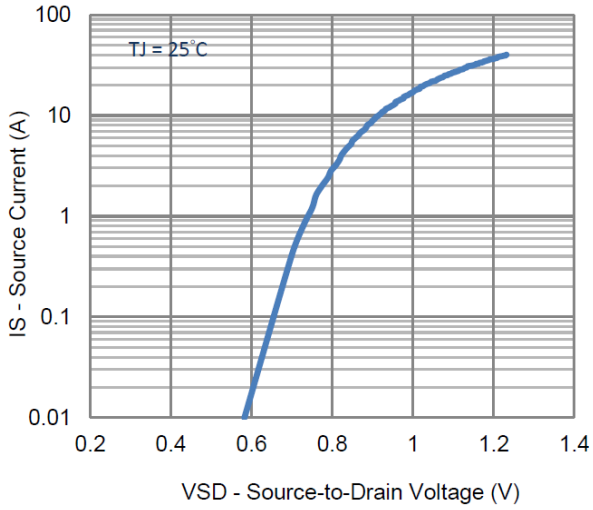
1. On-Resistance vs. Drain Current



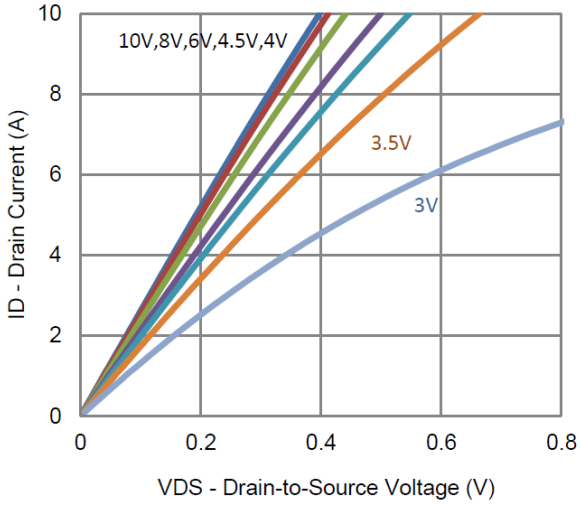
2. Transfer Characteristics



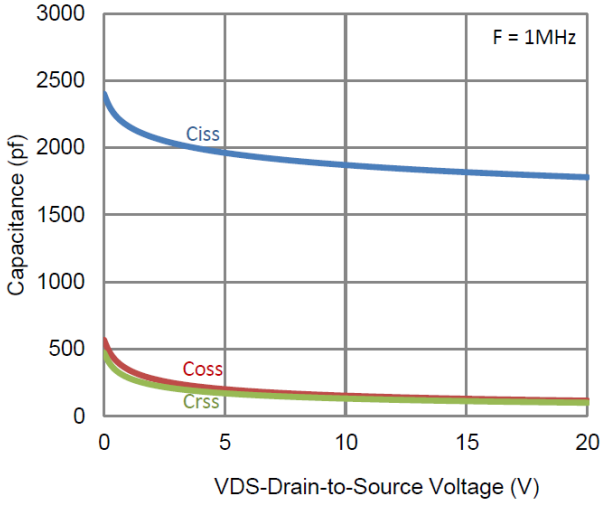
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

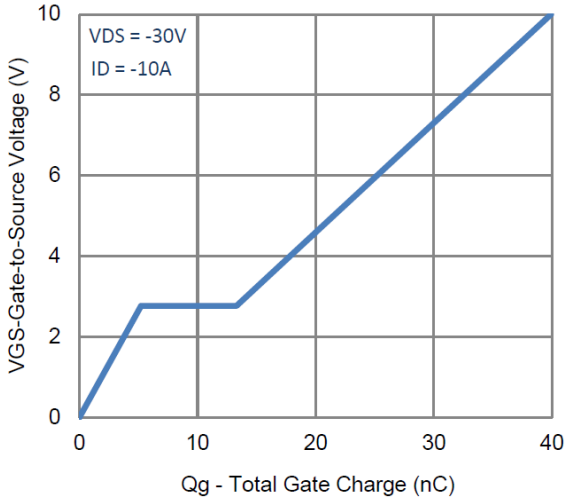


5. Output Characteristics

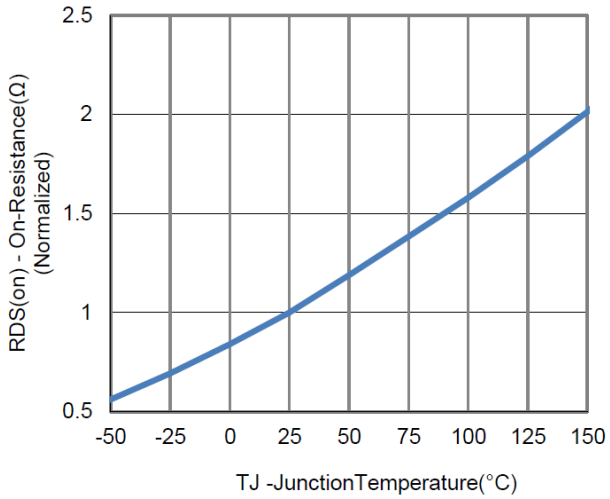


6. Capacitance

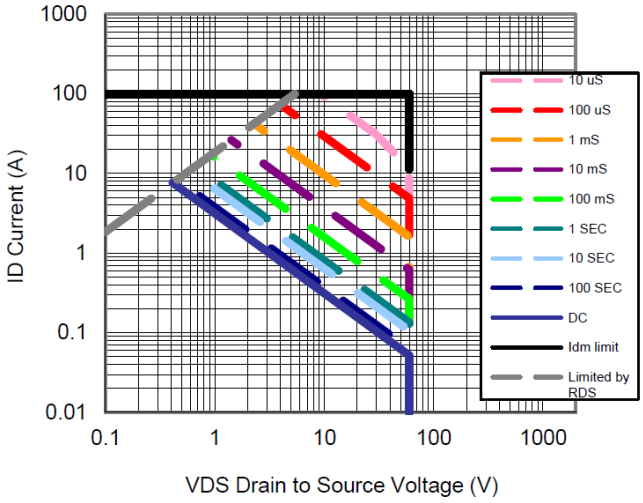
CHARACTERISTIC CURVE



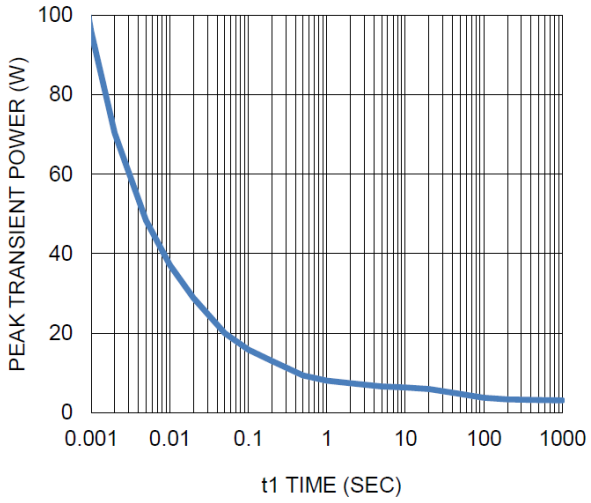
7. Gate Charge



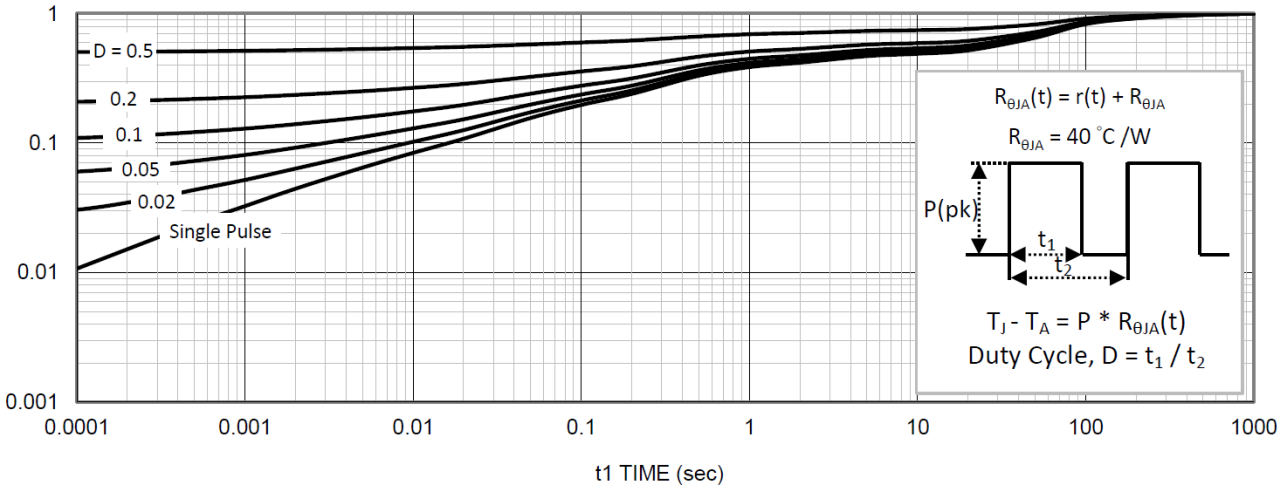
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient