ACE6465M

P-Channel 60-V (D-S) MOSFET

Features

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

PRODUCT SUMMARY		
V_{DS} (V)	r_{DS}(on) (mΩ)	I_D(A)
-60	9.8@ V_{GS} = -10V	-19
	11.2 @ V_{GS} = -4.5V	-17

Applications

- Load Switches
- DC/DC Conversion
- Motor Drives

Absolute Maximum Ratings

Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [a]	T_A=25℃	I_D	-19	A
	T_A=70℃		-15	
Pulsed Drain Current [b]		I_{DM}	-70	A
Continuous Source Current (Diode Conduction) [a]		I_S	-7.1	A
Power Dissipation [a]	T_A=25℃	P_D	5	W
	T_A=70℃		3.2	
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient [a]	t <= 10 sec	$R_{\theta JA}$	25	°C/W
	Steady State		65	

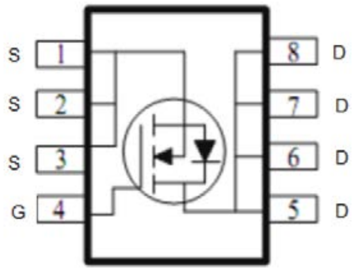
Notes

a. Surface Mounted on 1” x 1” FR4 Board.

b. Pulse width limited by maximum junction temperature

Packaging Type

DFN5*6-8L



Ordering information

ACE6465M XX + H

- H: Halogen - free
- +: Pb - free
- XX: PN：DFN5*6-8L

Electrical Characteristics

T_A=25℃, unless otherwise specified.

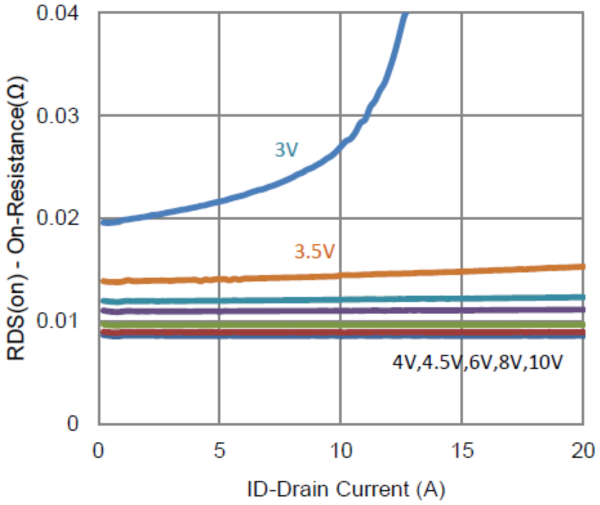
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = -250 uA	-1			V
Gate-Body Leakage	I_{GSS}	V_{DS}= 0 V, V_{GS}= ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-48V, V_{GS} = 0 V			-1	uA
		V_{DS} = -48 V, V_{GS} = 0 V, T_J = 55°C			-10	
On-State Drain Current	$I_{D(on)}$	V_{DS} = -5 V, V_{GS} = -10 V	-25			A
Drain-Source On-Resistance	$r_{DS(on)}$	V_{GS} = -10 V, I_D = -9 A			9.8	mΩ
		V_{GS} = -4.5 V, I_D = -8 A			11.2	
Forward Transconductance	g_{fs}	V_{DS} = -15 V, I_D = -9 A		60		S
Diode Forward Voltage	V_{SD}	I_S= -3.6 A, V_{GS} = 0 V		-0.72		V
Dynamic						
Total Gate Charge	Qg	V_{DS}= -30 V, V_{GS} = -4.5 V, I_D= -9 A		66		nC
Gate-Source Charge	Qgs			22		
Gate-Drain Charge	Qgd			23		
Turn-On Delay Time	td(on)	V_{DS}= -30 V, R_L= 3.3 Ω, I_D = -9 A, V_{GEN}= -10 V, R_{GEN}= 6 Ω		15		ns
Rise Time	tr			21		
Turn-Off Delay Time	td(off)			255		
Fall Time	tf			90		
Input Capacitance	Ciss	V_{DS} = -15 V, V_{GS} = 0 V, f = 1 MHz		5960		pF
Output Capacitance	Coss			540		
Reverse Transfer Capacitance	Crss			370		

Note :

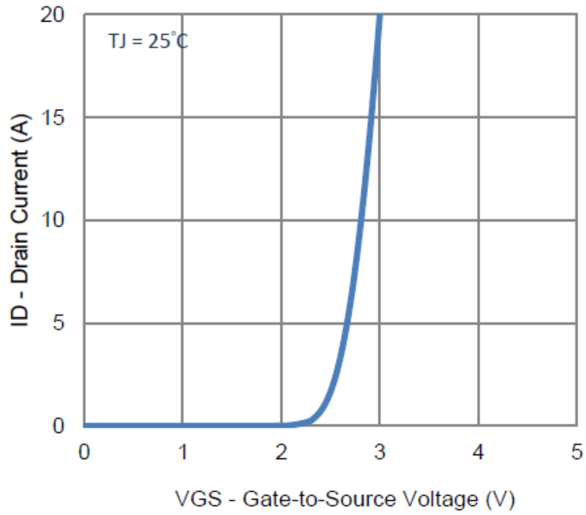
a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing

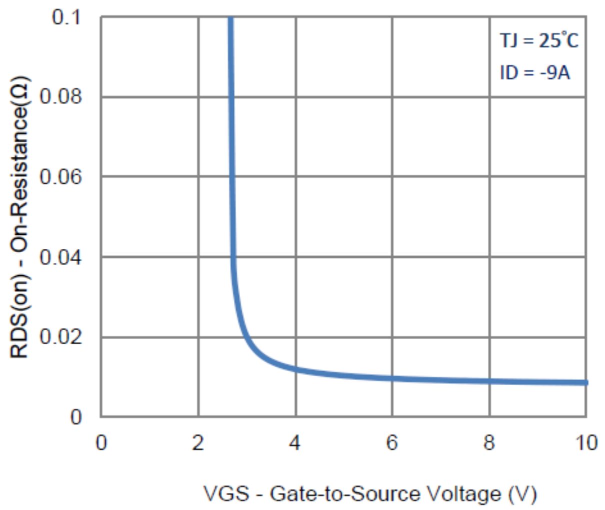
Typical Performance Characteristics



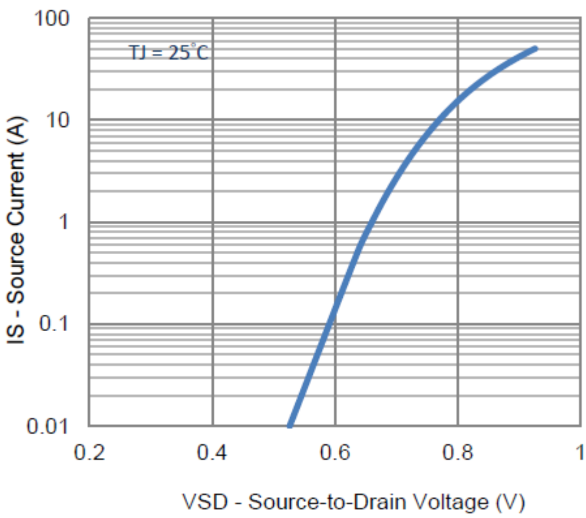
1. On-Resistance vs. Drain Current



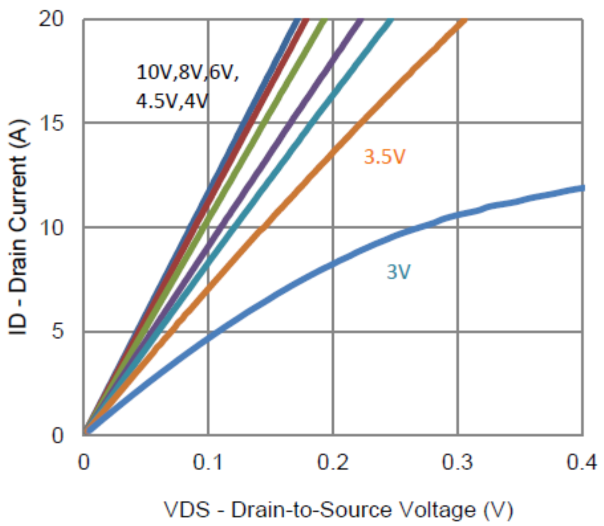
2. Transfer Characteristics



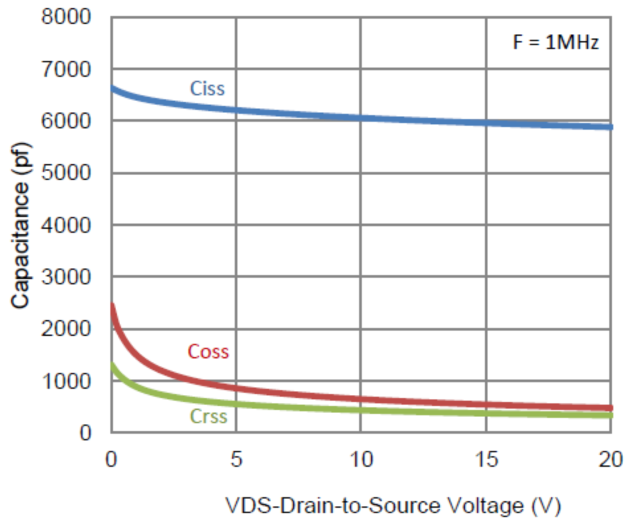
3. On-Resistance vs. Gate-to-Source Voltage



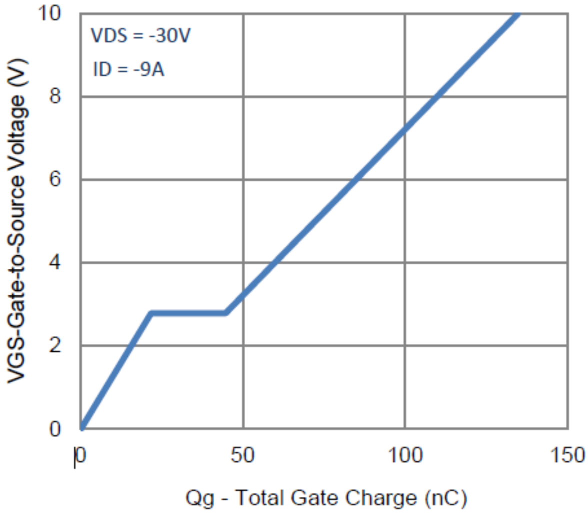
4. Drain-to-Source Forward Voltage



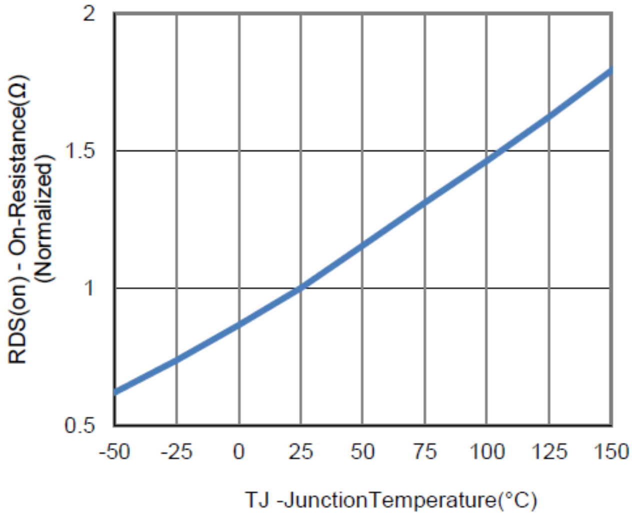
5. Output Characteristics



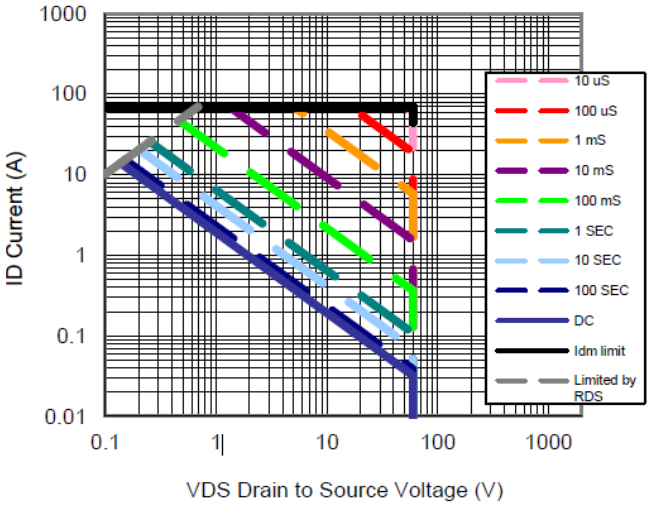
6. Capacitance



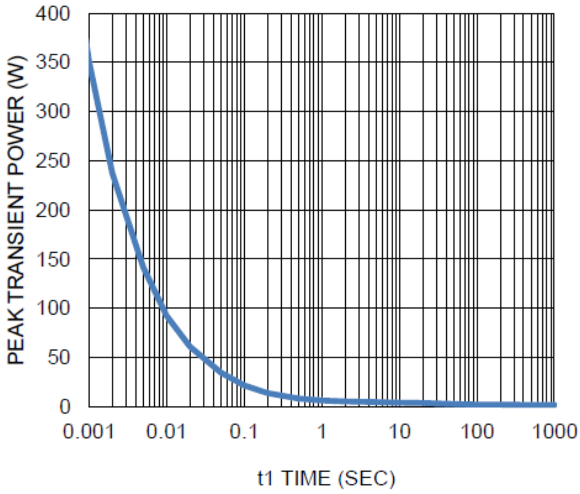
7. Gate Charge



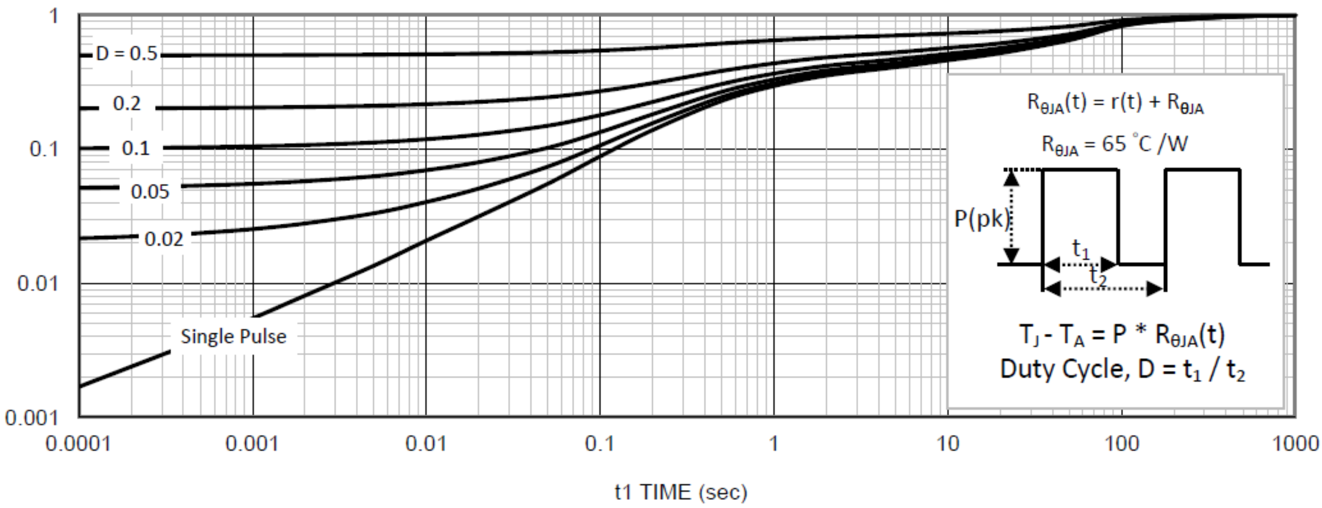
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



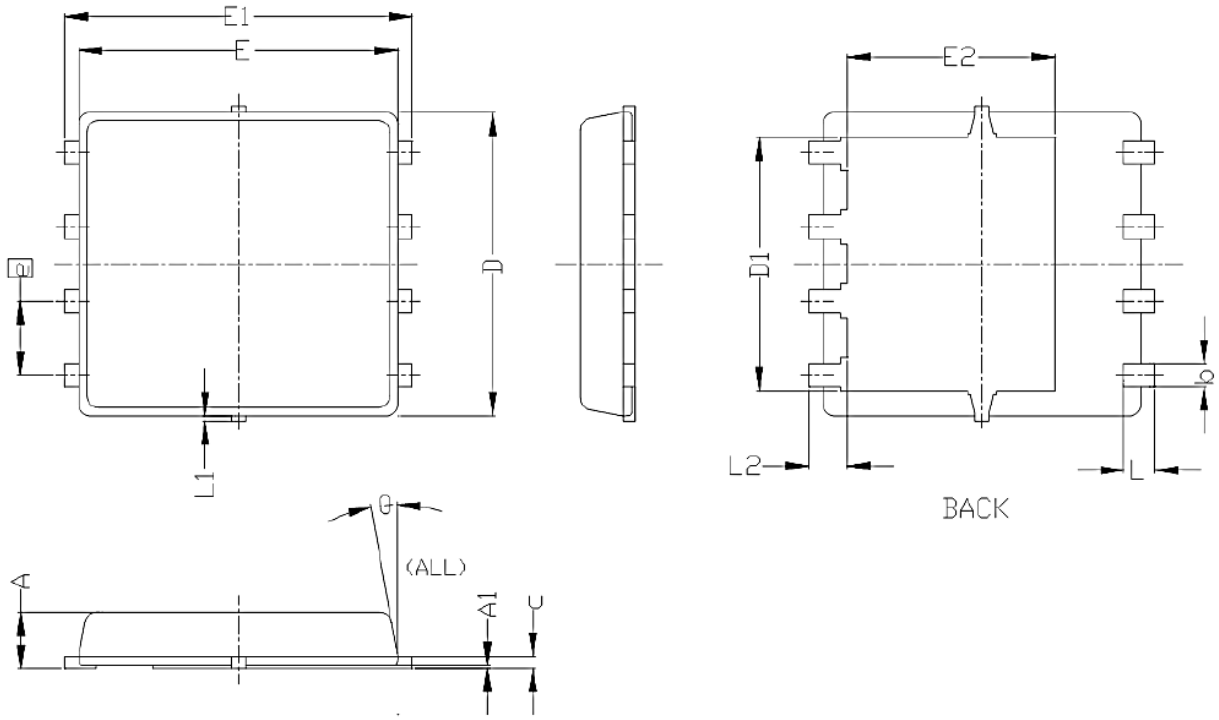
10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

Packing Information

DFN5*6-8L



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	0.95	1.00	0.033	0.037	0.039
A1	0.00	——	0.05	0.000	——	0.002
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.15	0.20	0.25	0.006	0.008	0.010
D	5.20 BSC			0.205 BSC		
D1	4.35 BSC			0.171 BSC		
E	5.55 BSC			0.219 BSC		
E1	6.05 BSC			0.238 BSC		
E2	3.62 BSC			0.143 BSC		
e	1.27 BSC			0.050 BSC		
L	0.45	0.55	0.65	0.018	0.022	0.026
L1	0	---	0.15	0	---	0.006
L2	0.68 REF			0.027 REF		
θ	0°	---	10°	0°	---	10°

Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Electronics Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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