ACE16354B

P-Channel Enhancement Mode Power MOSFET

Description

- DC/DC Converter
- Load switches

Features

- V_{DS} (V) = -60V,I_D = -3.5A
- $R_{DS(ON)}$@ V_{GS}= -10V , TYP 90mΩ
- $R_{DS(ON)}$)@ V_{GS}= -4.5V , TYP 120mΩ

Absolute Maximum Ratings

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current (Continuous) *AC	T_A=25°C	I_D	-3.5	A
	T_A=70°C		-2.8	
Drain Current (Pulse) *B		I_{DM}	-20	
Power Dissipation	T_A=25°C	P_D	2	W
Operating Temperature and Storage Temperature		T_J,T_{STG}	-55 to 150	°C

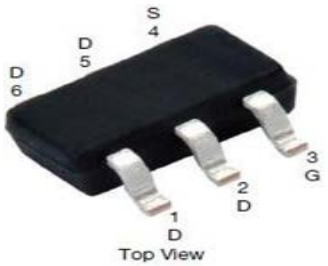
A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

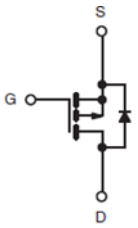
C: The current rating is based on the t≤ 10s junction to ambient thermal resistance rating.

Packaging Type

SOT23-6



Top View



P-Channel MOSFET

ACE16354B
P-Channel Enhancement Mode Power MOSFET

Ordering information

ACE16354B XX + H

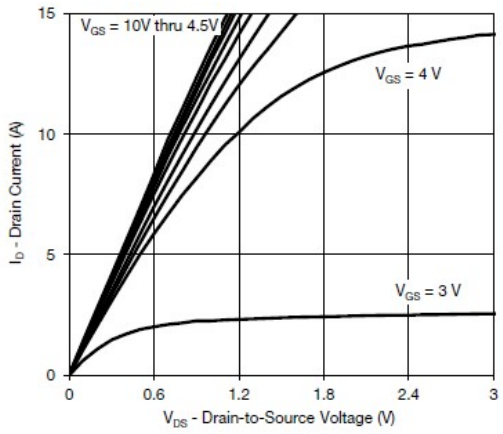
- Halogen - free
- Pb - free
- GM: SOT-23-6

Electrical Characteristics

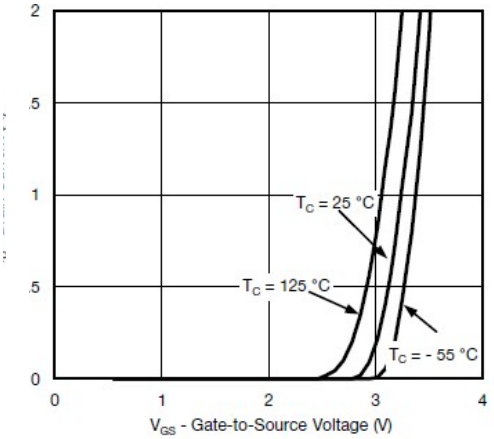
T_A=25 °C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V			-1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=-250μA	-2	-2.6	-3	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-2A		90	110	mΩ
		V_{GS}=-4.5V, I_D=-1A		120	150	
Forward Trans Conductance	g_{FS}	V_{DS}=-30V, I_D=-3.5A		11		S
Diode Forward Voltage	V_{SD}	I_{SD}=-2.8A, V_{GS}=0V			-1.2	V
Diode Forward Current	I_S	Tc=25 °C			-3.5	A
Switching						
Total Gate Charge	Q_g	V_{GS}=-4.5V,V_{DS}=-30V, I_D=-3.5A,		10.1		nC
Gate-Source Charge	Q_{gs}			3.3		
Gate-Drain Charge	Q_{gd}			3.9		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-30V,R_L=10.7Ω V_{GEN}=-10V ,R_{GEN}=1Ω I_D=-2.8A		8		ns
Turn-On Rise Time	t_f			6		
Turn-Off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			16		
Dynamic						
Input Capacitance	C_{iss}	V_{GS}=0V,V_{DS}=-30V, f=1MHz		832		pF
Output Capacitance	C_{oss}			88		
Reverse Transfer Capacitance	C_{rss}			63		

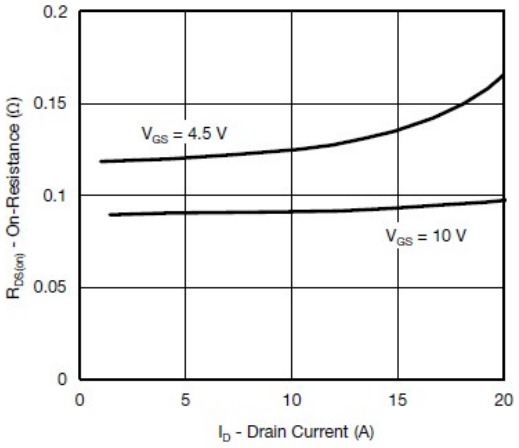
Typical Performance Characteristics



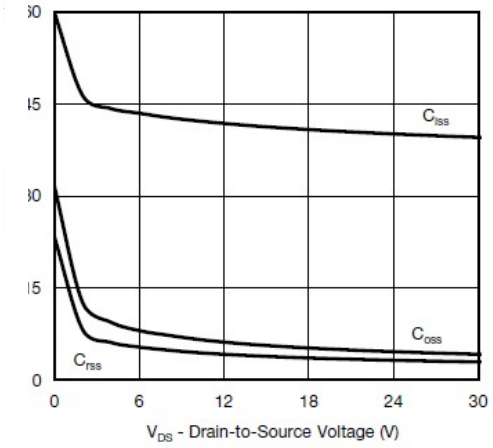
Output Characteristics



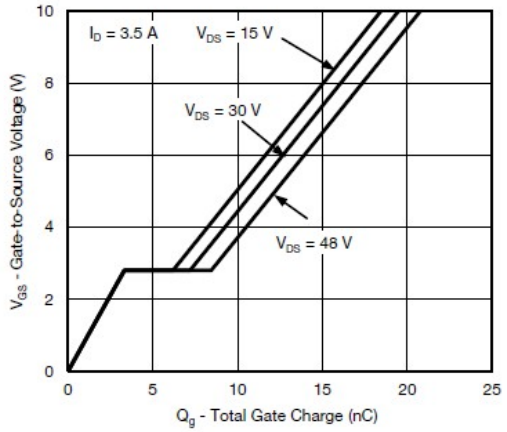
Transfer Characteristics



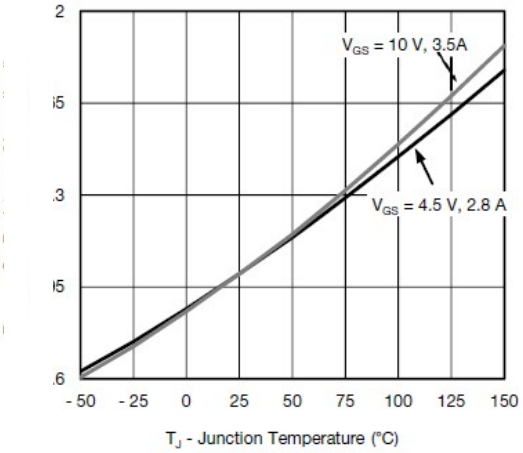
On-Resistance vs. Drain Current



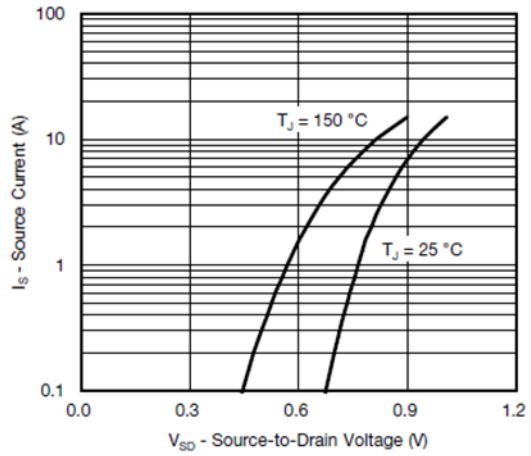
Capacitance



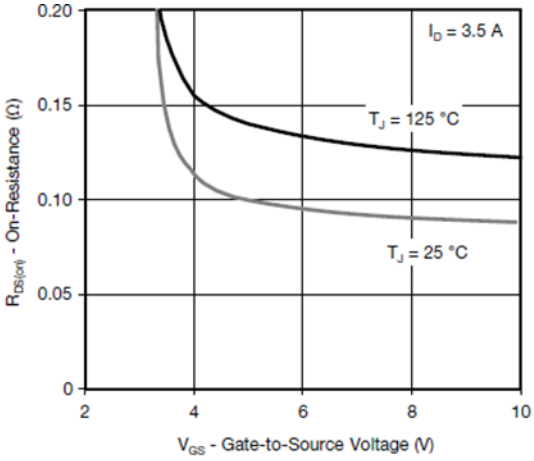
Gate Charge



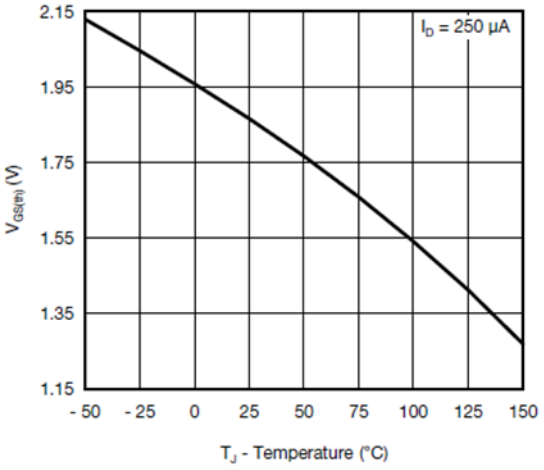
On-Resistance vs. Junction Temperature



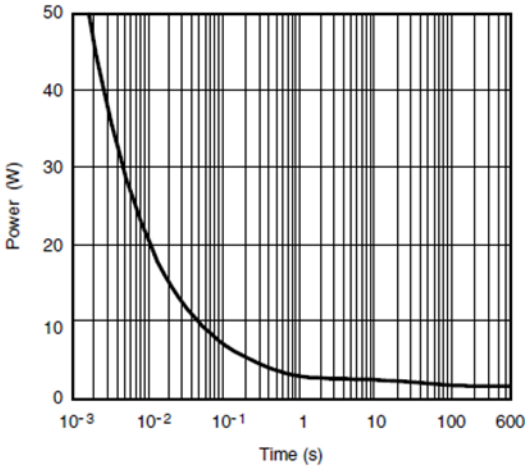
Source-Drain Diode Forward Voltage



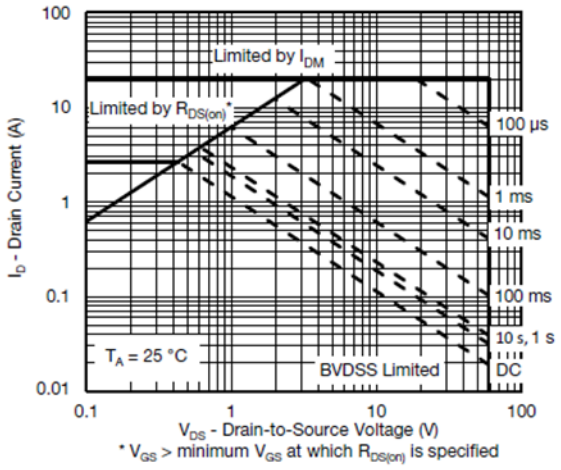
On-Resistance vs. Gate-to-Source Voltage



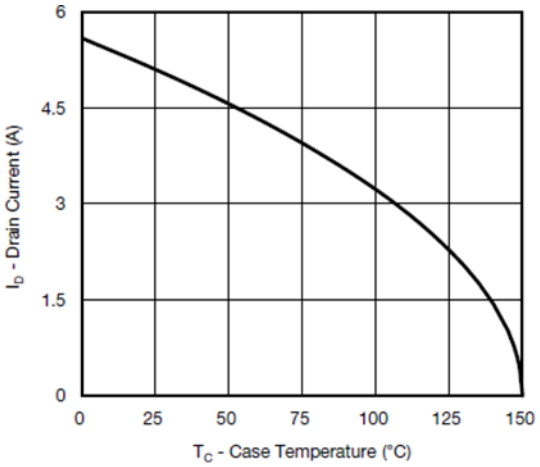
Threshold Voltage



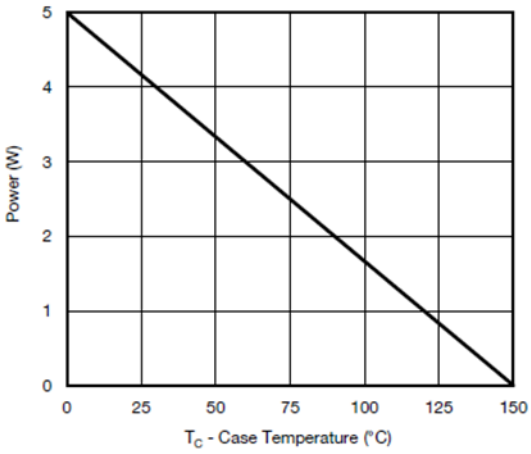
Single Pulse Power, Junction-to-Ambient



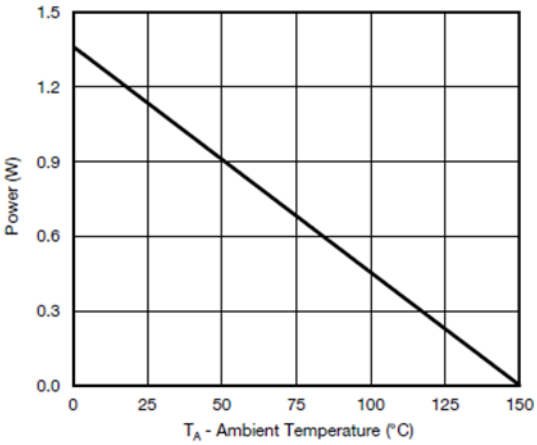
Safe Operating Area



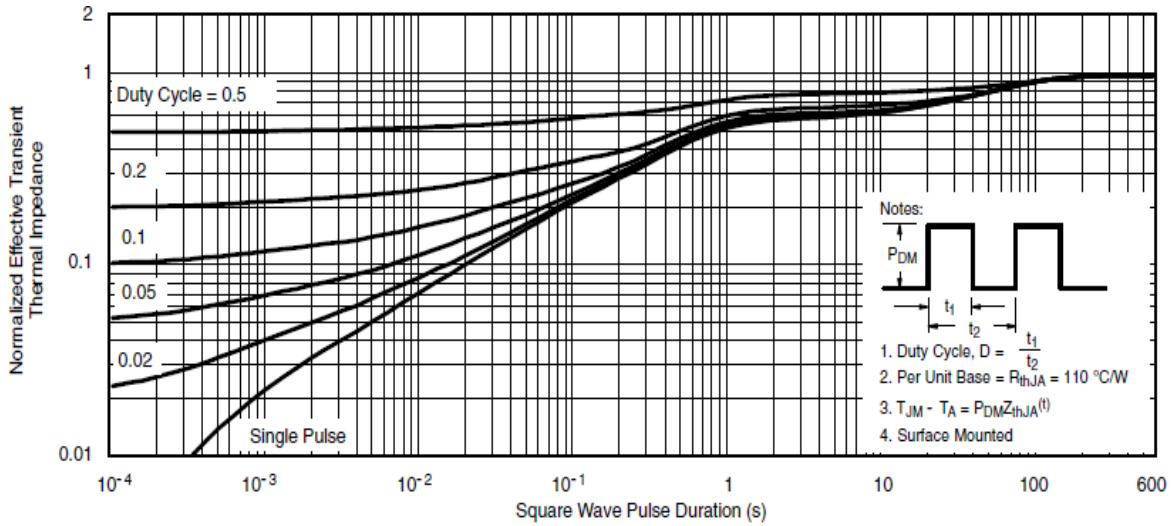
Current Derating*



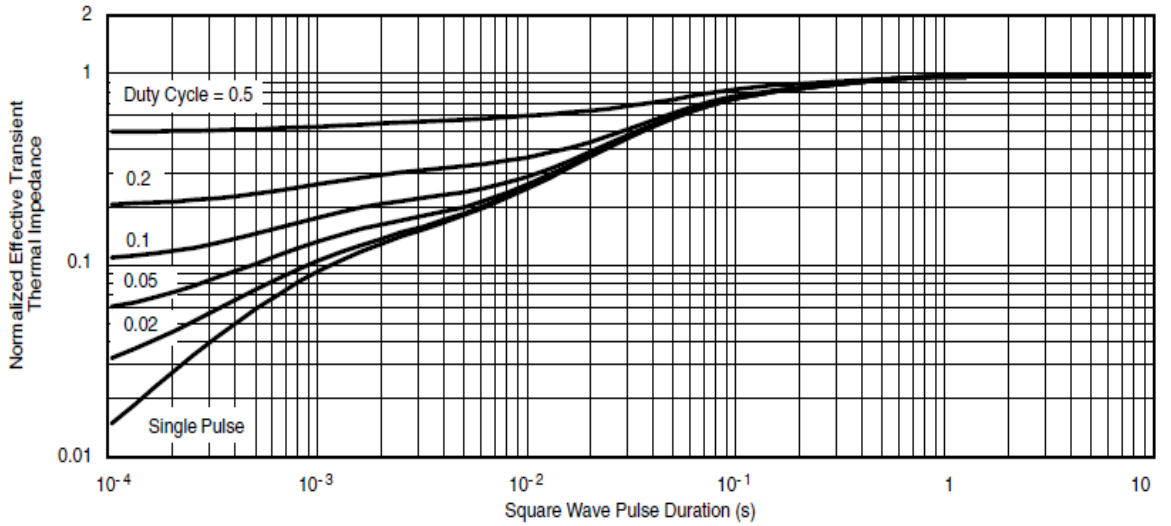
Power, Junction-to-Foot



Power Derating, Junction-to-Ambient



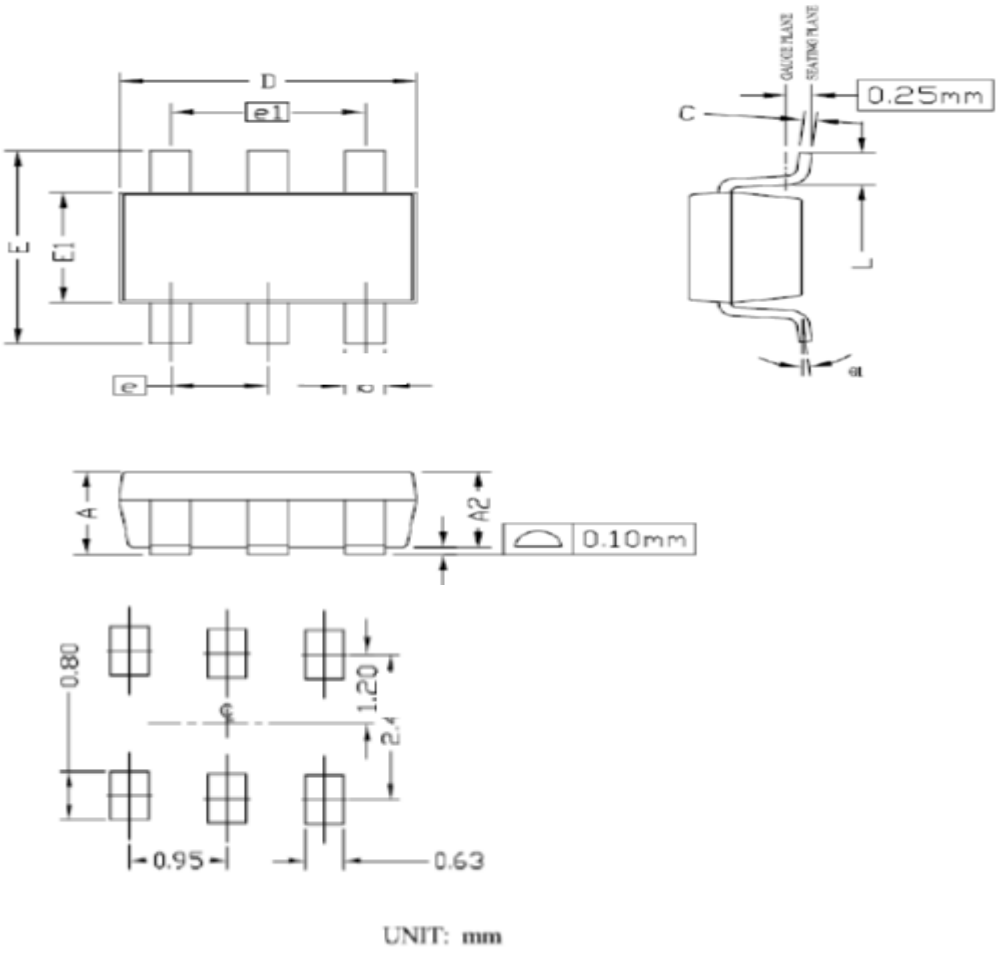
Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

Packing Information

SOT23-6



UNIT: mm

Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	NOM	Max.	Min.	NOM	Max.
A	0.90		1.25	0.035		0.049
A1	0.00		0.15	0.00		0.006
A2	0.70	1.10	1.20	0.028	0.043	0.047
b	0.30	0.40	0.50	0.012	0.016	0.020
C	0.08	0.13	0.20	0.003	0.005	0.008
D	2.70	2.90	3.10	0.106	0.114	0.122
E	2.50	2.80	3.10	0.098	0.110	0.122
E1	1.50	1.60	1.70	0.059	0.063	0.067
e	0.95BSC			0.037BSC		
e1	1.90BSC			0.075BSC		
L	0.30		0.60	0.012		0.024
θ1	0°		8°	0°		8°

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.