

## Complementary Enhancement MOSFET

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies. And suitable for use as a load switch or in PWM applications.

### Features

N-channel

$V_{DS}(V)=30V$

$I_D=6.9A$

$R_{DS(ON)}<32m\Omega (V_{GS}=10V)$

$R_{DS(ON)}<36m\Omega (V_{GS}=4.5V)$

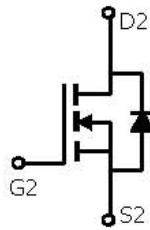
P-channel

$V_{DS}(V)=-30V$

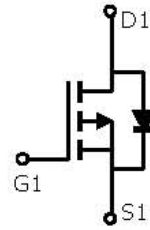
$I_D=-6A$

$R_{DS(ON)}<65m\Omega (V_{GS}=-10V)$

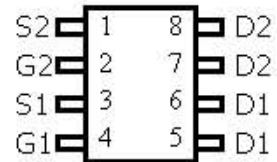
$R_{DS(ON)}<75m\Omega (V_{GS}=-4.5V)$



**n-channel**



**p-channel**



**SOP-8**

Parameter	Symbol	Rating		Unit
		N-channel	P-channel	
Drain-Source Voltage	$V_{DSS}$	$\pm 30$		V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$		V
Continuous Drain Current <sup>A</sup>	$I_D (T_A=25^\circ C)$	6.9	-6.0	A
	$I_D (T_A=70^\circ C)$	5.8	-5.0	A
Pulsed Drain Current <sup>B</sup>	$I_{DM}$	$\pm 30$		A
Power Dissipation	$P_D (T_A=25^\circ C)$	2		W
	$P_D (T_A=70^\circ C)$	1.44		W
Maximum Junction-to-Ambient <sup>A</sup>	$R_{\theta JA}(t \leq 10s)$	62.5		$^\circ C/W$
	$R_{\theta JA}$	110		$^\circ C/W$
Maximum Junction-to-Lead <sup>C</sup>	$R_{\theta JL}$	60	4	$^\circ C/W$
Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150		$^\circ C$

### Notes:

A: The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ C$ . The value in any a given application depends on the user's specific board design. The current rating is based on the  $t \leq 10s$  thermal resistance rating.

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

C: The  $R_{\theta JA}$  is the sum of the thermal impedance from junction to lead  $R_{\theta JL}$  and lead to ambient.

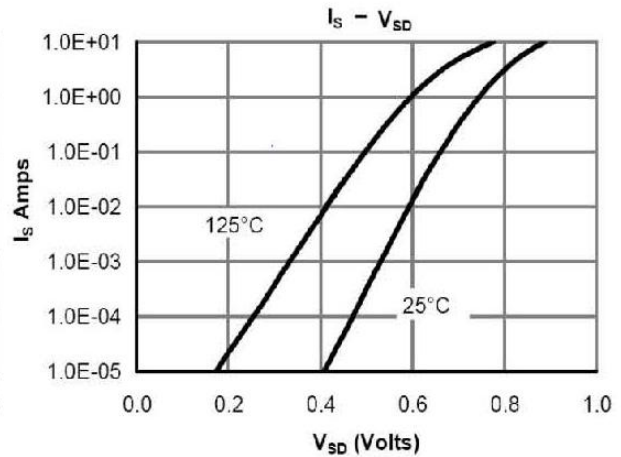
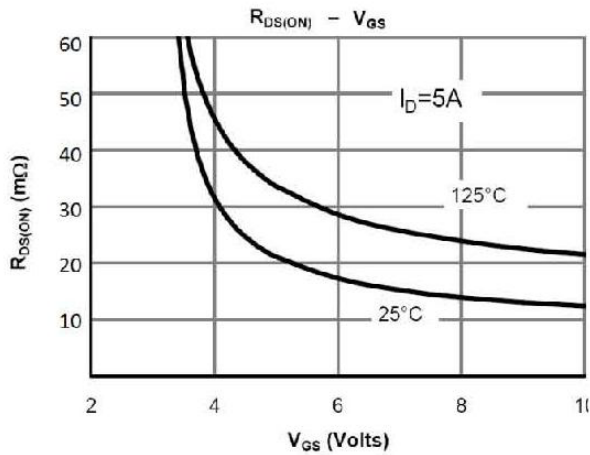
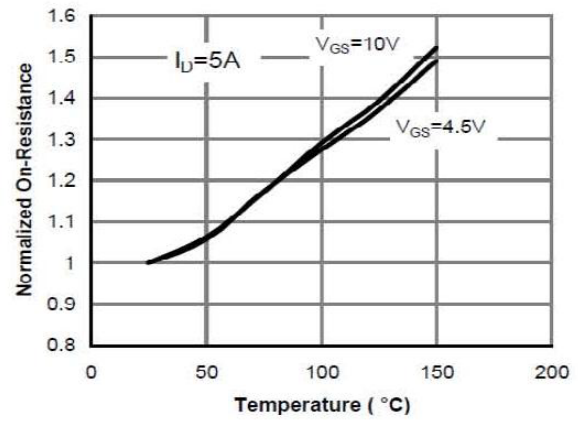
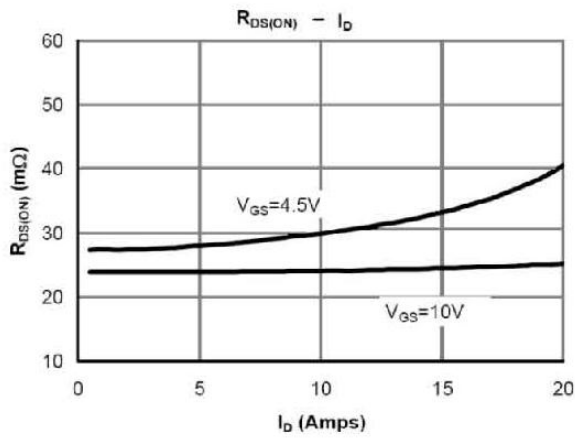
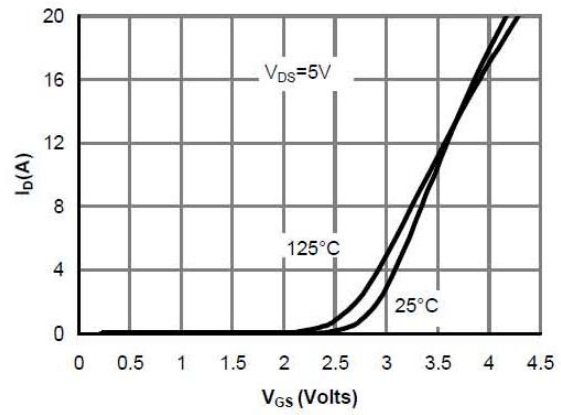
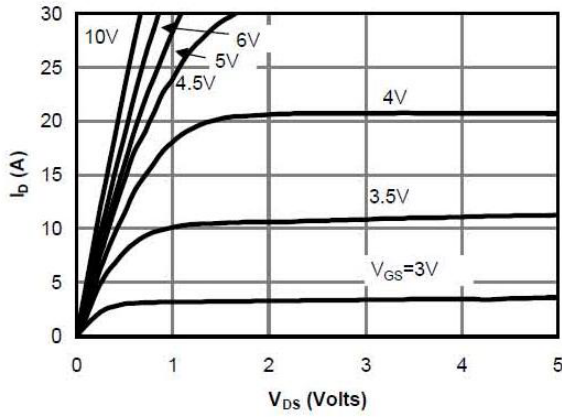
D: The static characteristics in Figures 1 to 6,12,14 are obtained using 80  $\mu s$  pulses, duty cycle 0.5% max.

E: These tests are performed with the device mounted on 1 in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ C$ . The SOA curve provides a single pulse rating.

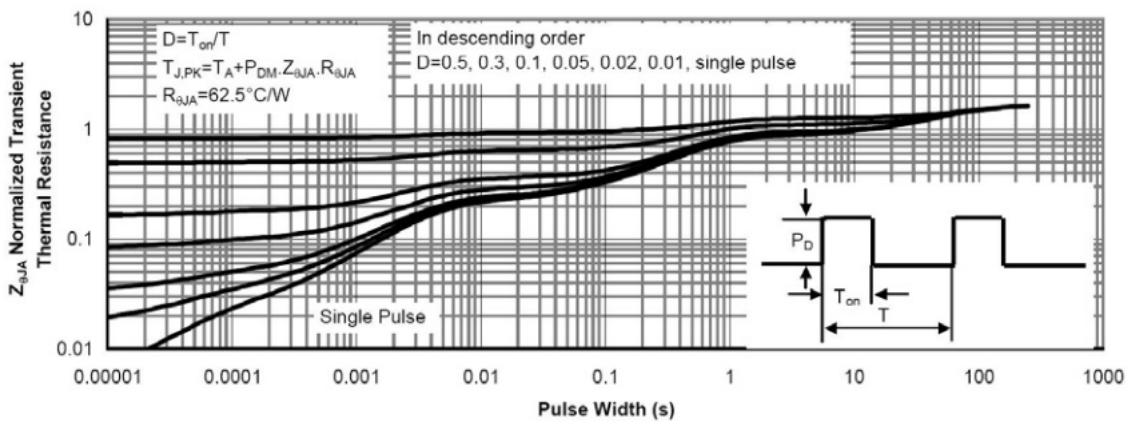
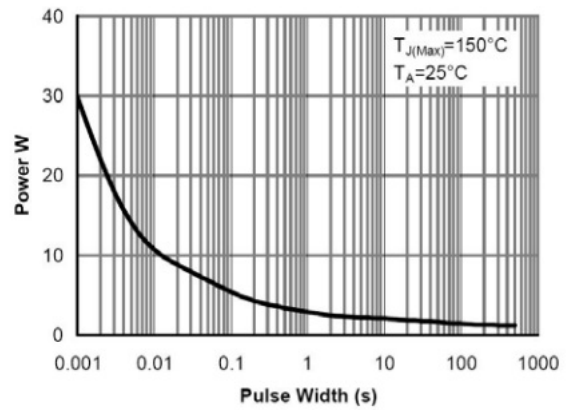
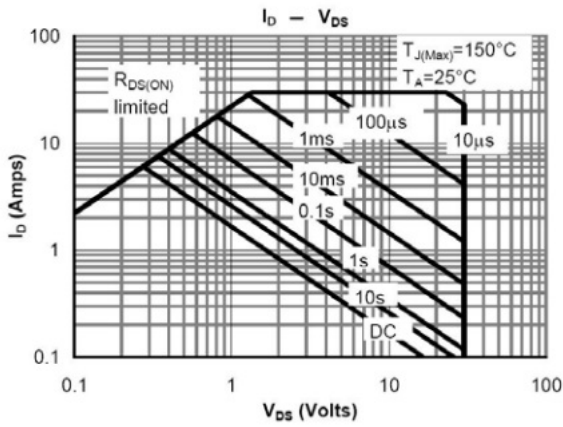
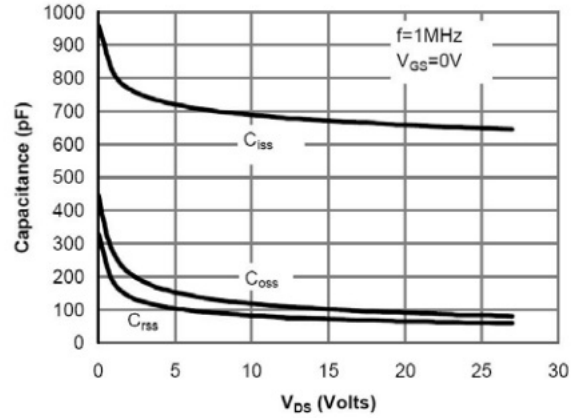
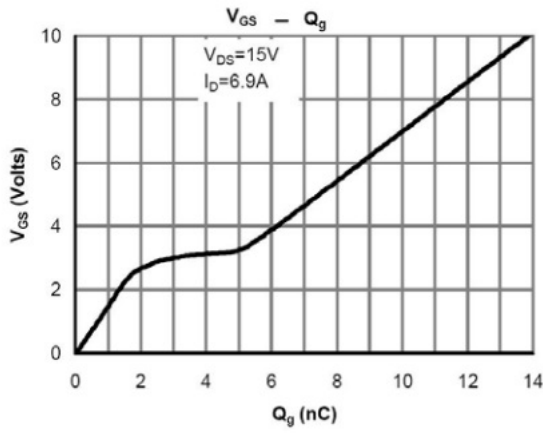
## N-CHANNEL Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	30			V	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=24V$ $V_{GS}=0V$			1.0	$\mu A$	
		$V_{DS}=24V$ $V_{GS}=0V$ $T_J=55^\circ C$			5.0	$\mu A$	
Gate-Body leakage current	$I_{GSS}$	$V_{GS}=\pm 12V$ $V_{DS}=0V$			100	nA	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	0.65		1.3	V	
On state drain current	$I_{D(on)}$	$V_{DS}=4.5V$ $V_{GS}=5.0V$	6.9			A	
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=6.9A$		24	32	m $\Omega$	
		$V_{GS}=10V$ $T_J=125^\circ C$ $I_D=6.9A$		32.3	38	m $\Omega$	
		$V_{GS}=4.5V$ $I_D=5.0A$		27	36	m $\Omega$	
Forward Transconductance	$g_{FS}$	$V_{DS}=5.0V$ $I_D=5.0A$		9		S	
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_S=1.0A$		0.76	1.0	V	
Input Capacitance	$C_{iss}$	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$		680		pF	
Output Capacitance	$C_{oss}$			102		pF	
Reverse Transfer Capacitance	$C_{rss}$			77		pF	
Gate resistance	$R_g$	$V_{DS}=0V$ $f=1.0MHz$ $V_{GS}=0V$		3.0		$\Omega$	
Total Gate Charge(10V)	$Q_g$	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=6.9A$		13.84		nC	
Total Gate Charge(4.5V)				6.74		nC	
Gate-Source Charge			$Q_{gs}$		1.82		nC
Gate-Drain Charge			$Q_{gd}$		3.2		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=2.1\Omega$ $R_{GEN}=3\Omega$		4.6		ns	
Turn-On Rise Time	$t_r$			4.1		ns	
Turn-Off Delay Time	$t_{d(off)}$			20.6		ns	
Turn-Off Fall Time	$t_f$			5.2		ns	
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=6.9A$ $dI/dt=100A/\mu s$		16.5		ns	
Body Diode Reverse Recovery Charge	$Q_{rr}$	$I_F=6.9A$ $dI/dt=100A/\mu s$		7.8		nC	

## N-CHANNEL Electrical Characteristic Curve



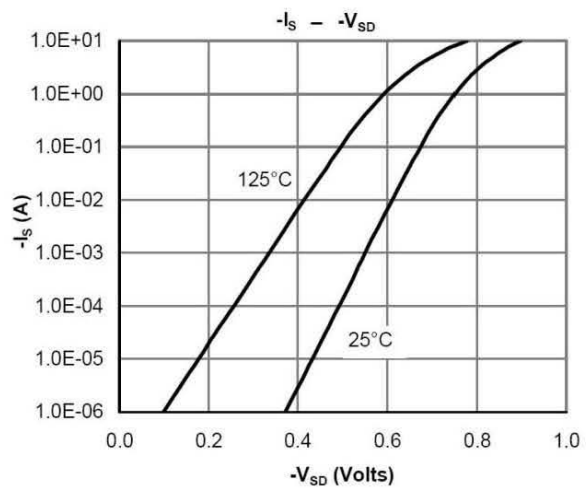
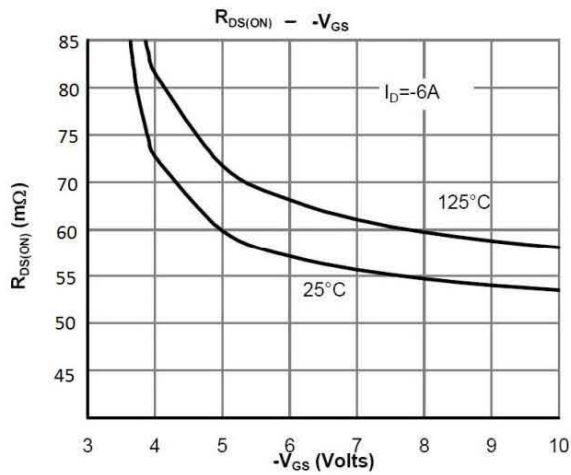
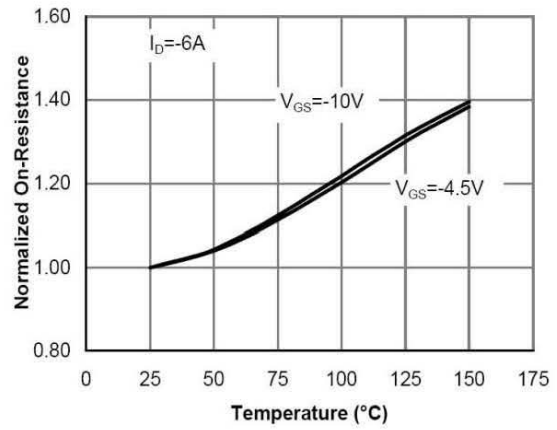
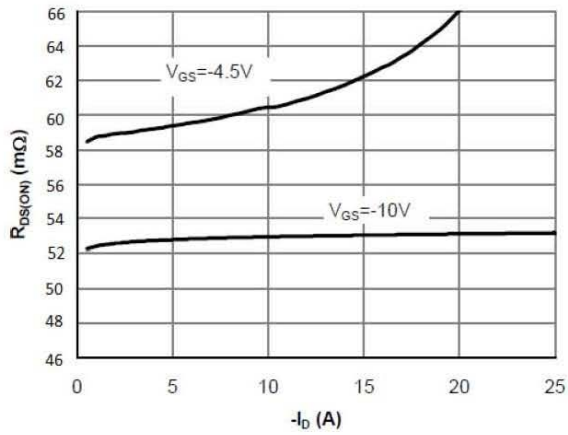
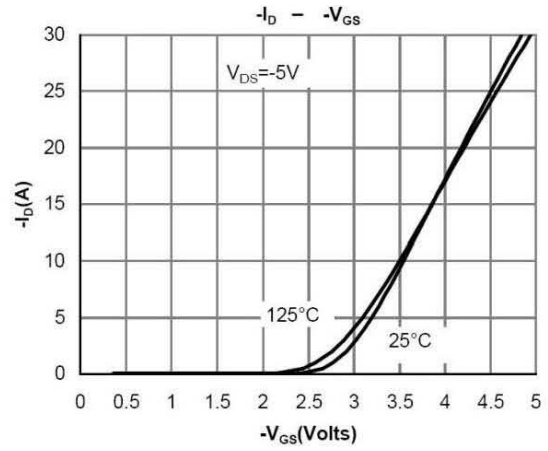
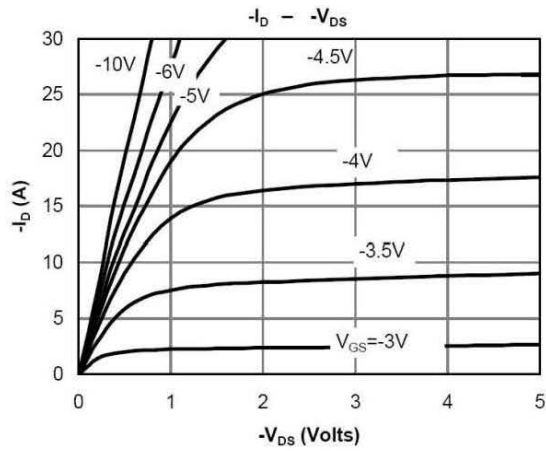
## N-CHANNEL Electrical Characteristic Curve



## P-CHANNEL Electrical Characteristics(Ta=25°C)

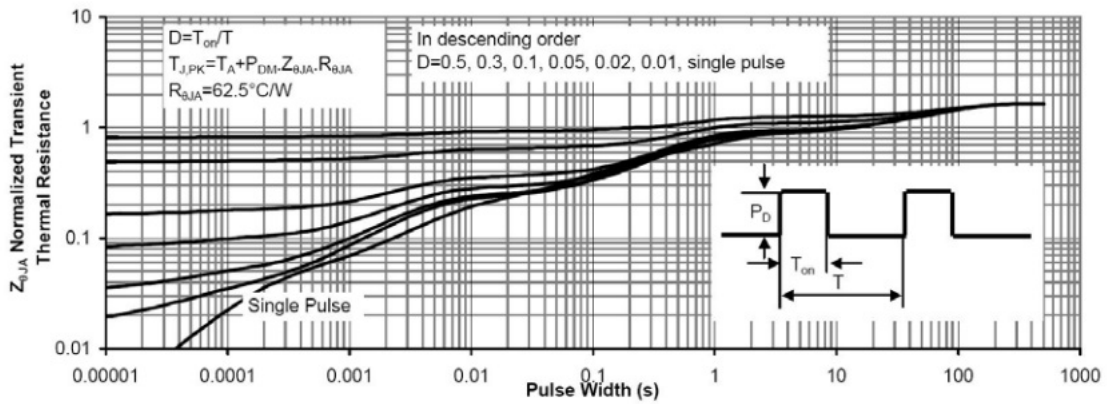
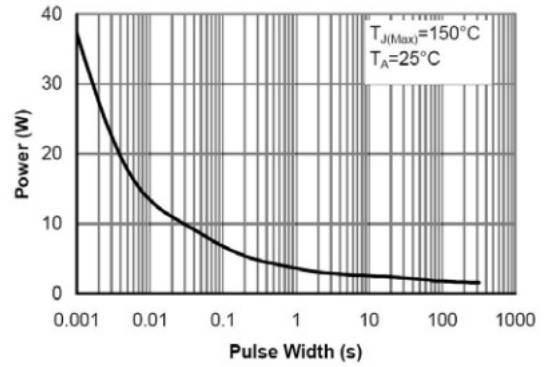
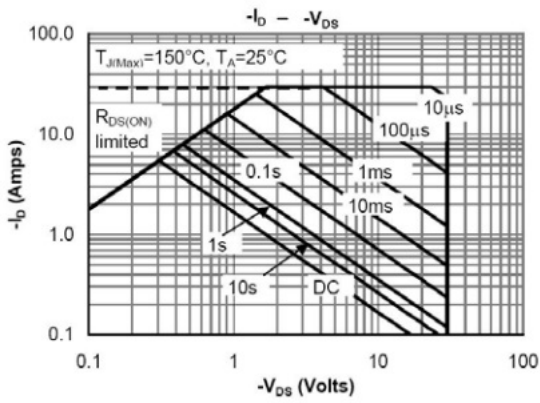
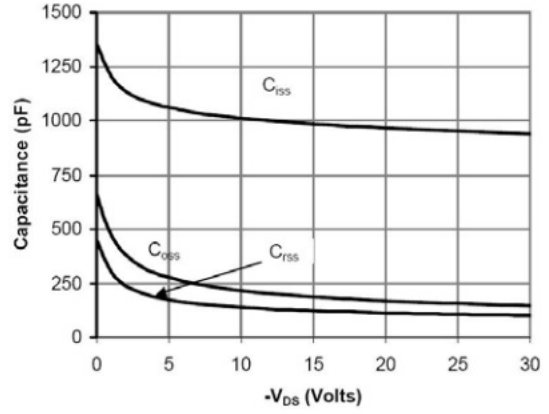
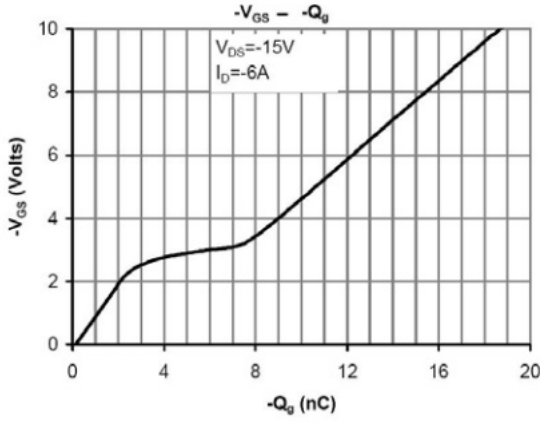
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=-250\mu A$	-30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-24V$ $V_{GS}=0V$			-1.0	$\mu A$
		$V_{DS}=-24V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5.0	$\mu A$
Gate-Body leakage current	$I_{GSS}$	$V_{GS}=\pm 12V$ $V_{DS}=0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-0.5	-0.7	-1.3	V
On state drain current	$I_{D(on)}$	$V_{DS}=-4.5V$ $V_{GS}=-5.0V$	6			A
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$ $I_D=-6.0A$		52	65	m $\Omega$
		$V_{GS}=-10V$ $I_D=-6.0A$ $T_J=125^\circ C$		57	86	m $\Omega$
		$V_{GS}=-4.5V$ $I_D=-5.0A$		59	75	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=-5.0V$ $I_D=-5.0A$		12		S
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ $I_S=-1.0A$		-0.76	-1.0	V
Input Capacitance	$C_{iss}$	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1.0MHz$		920		pF
Output Capacitance	$C_{oss}$			190		pF
Reverse Transfer Capacitance	$C_{rss}$			122		pF
Gate resistance	$R_g$	$V_{DS}=0V$ $f=1.0MHz$ $V_{GS}=0V$		3.6		$\Omega$
Total Gate Charge(10V)	$Q_g$	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-6.0A$		18.5		nC
Total Gate Charge(4.5V)				9.6		nC
Gate-Source Charge	$Q_{gs}$			2.7		nC
Gate-Drain Charge	$Q_{gd}$			4.5		nC
Turn-On Delay Time	$t_{d(on)}$		$V_{DS}=-15V$ $V_{GS}=-10V$ $R_L=2.7\Omega$ $R_{GEN}=3\Omega$		7.7	
Turn-On Rise Time	$t_r$			5.7		ns
Turn-Off Delay Time	$t_{d(off)}$			20.2		ns
Turn-Off Fall Time	$t_f$			9.5		ns
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=-6.0A$ $dI/dt=100A/\mu s$		20		ns
Body Diode Reverse Recovery Charge	$Q_{rr}$	$I_F=-6.0A$ $dI/dt=100A/\mu s$		8.8		nC

## P-CHANNEL Electrical Characteristic Curve

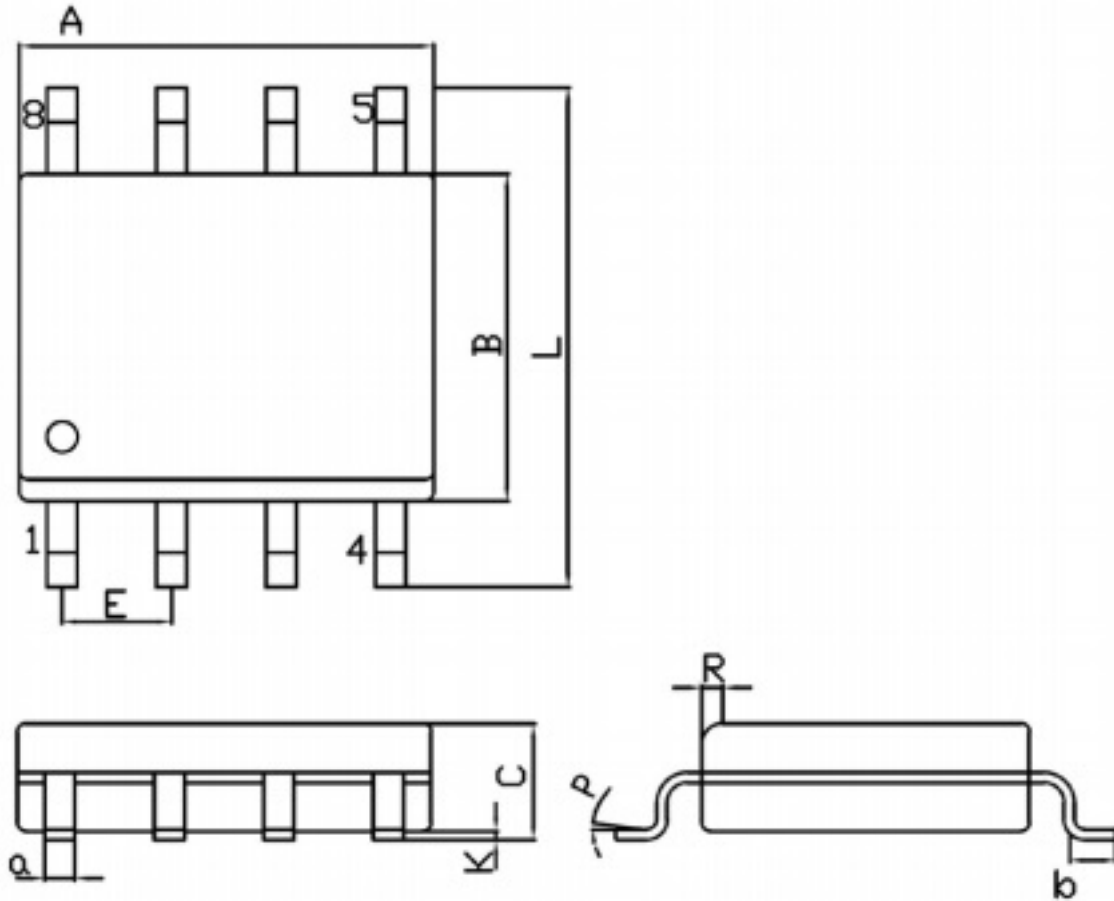




## P-CHANNEL Electrical Characteristic Curve



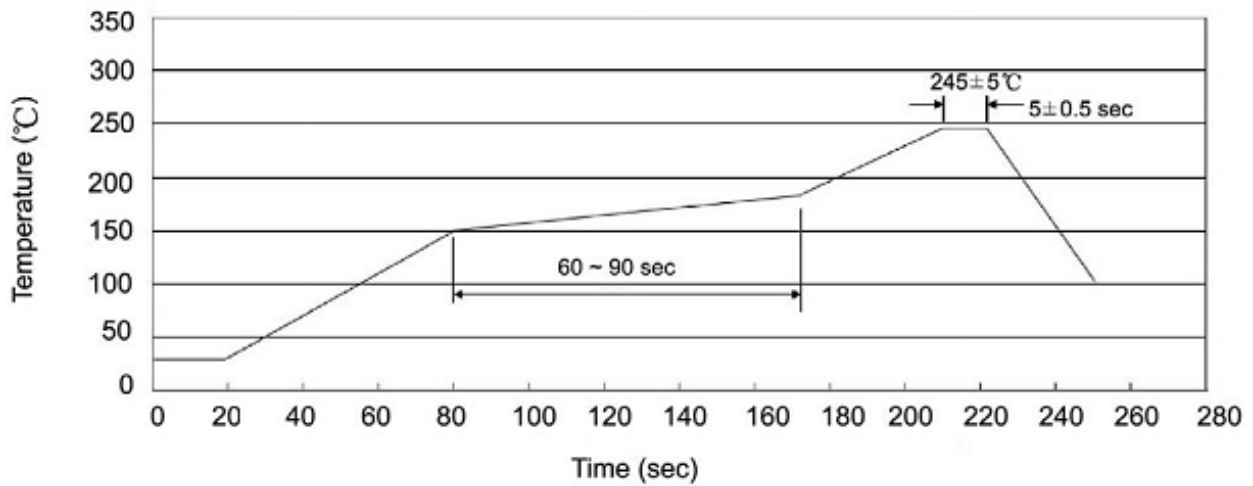
Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.70	5.10	C	1.35	1.75
B	3.70	4.10	a	0.35	0.49
L	5.80	6.20	R	0.30	0.60
E	1.27BSC		P	0°	7°
K	0.12	0.22	b	0.40	1.25



## Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

1. Preheating: 150~180°C, Time: 60~90sec.
2. Peak Temp.: 245±5°C, Duration: 5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

## Resistance to Soldering Heat Test Conditions

Temp.: 260±5°C      Time: 10±1 sec

单击下面可查看定价，库存，交付和生命周期等信息

[>>SHIKUES\(时科\)](#)