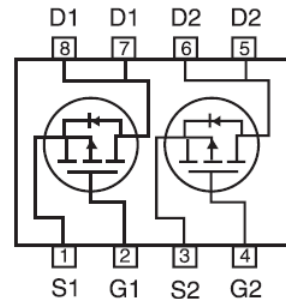
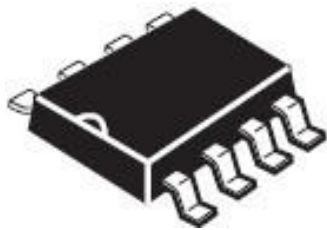


**FEATURES**

- ◆ Super high dense cell design for low  $R_{DS(ON)}$ .
- ◆ Rugged and reliable.
- ◆ SOP-8 package.
- ◆ Pb Free.

Product Summary		
$V_{DS}$ (V)	$I_D$ (A)	$R_{DS(ON)}$ (m $\Omega$ ) Max
-30V	-5.3A	46 @ $V_{GS} = 10V$
		78 @ $V_{GS} = 4.5V$



**SOP-8**

**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^{\circ}C$  unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous <sup>a</sup> @ $T_j=125^{\circ}C$ - Pulse $d_b$	$I_D$	-5.3	A
	$I_{DM}$	-24	A
Drain-source Diode Forward Current <sup>a</sup>	$I_S$	-1.7 A	A
Maximum Power Dissipation <sup>a</sup>	$P_D$	2.5	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^{\circ}C$

**THERMAL CHARACTERISTICS**

Thermal Resistance, Junction-to Ambient <sup>a</sup>	Rth JA	50	°C/W
--	--------	----	------

**ELECTRICAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)**

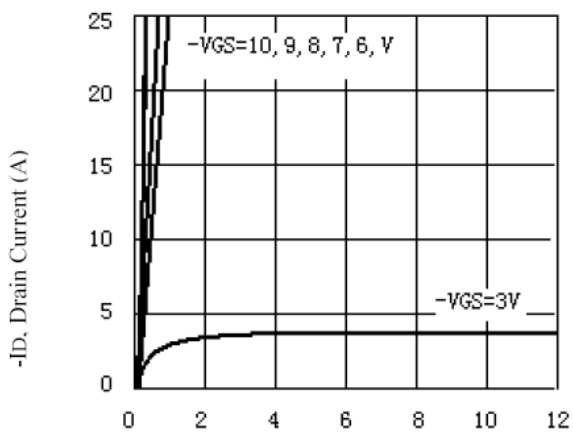
Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BVDSS	VGS=0V, ID=-250μA	-30			V
Zero Gate Voltage Drain Current	IDSS	VDS=-24V, VGS=0V			-1	μA
Gate-Body Leakage	IGSS	VGS=±20V, VDS=0V			±100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=-250μA	-1	-1.5	-2.5	V
Drain-Source On-State Resistance	RDS(ON)	VGS=-10V, ID=-5.6A		46	55	mΩ
		VGS=-4.5V, ID=-4.2A		78	85	
Forward Transconductance	~FS	VGS=-5V, ID=-5.6A		5		S
<b>DAYNAMIC CHARACTERISTICS</b>						
Input Capacitance	Ciss	VDS=-15V, VGS=0V f=1.0MHz		582		pF
Output Capacitance	Coss			125		pF
Reverse Transfer Capacitance	Crss			86		pF
<b>SWITCHING CHARACTERISISTICS</b>						
Turn-On Delay Time	tD(ON)	VDD=-15V ID=-5.3A, VGEN=-4.5V RL=10ohm RGEN=10ohm		9		ns
Rise Time	tr			10		ns
Turn-Off Delay Time	tD(OFF)			38		ns
Fall Time	tf			23		ns
Total Gate Charge	Q~		VDS=-15V, ID=-1A		11.7	
Gate-Source Charge	Q~s	VGS=-10V		2.1		nC
Gate-Drain Charge	Q~d			2.9		nC

## ELECTRICAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)

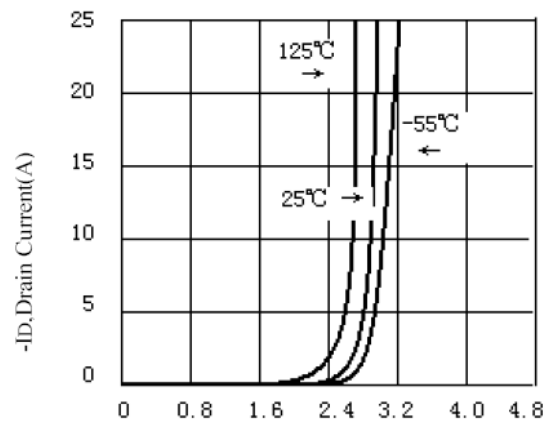
Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>						
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>s</sub> =-1.7A		-0.84	-1.2	V

### Notes

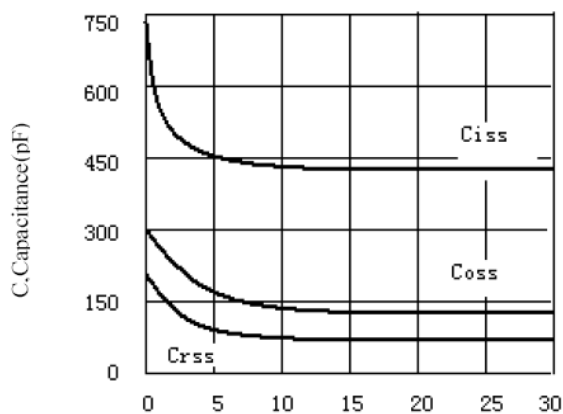
- Surface Mounted on FR4 Board,  $t \leq 10\text{sec}$
- Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$
- Guaranteed by design, not subject to production testing.



- V<sub>ds</sub>, Drain-to-Source Voltage (V)  
Figure 1. Output Characteristics



-V<sub>gs</sub>, Gate-to-source Voltage (V)  
Figure 2. Transfer Characteristics



- V<sub>GS</sub>, Drain-to Source Voltage  
Figure3. Capacitance

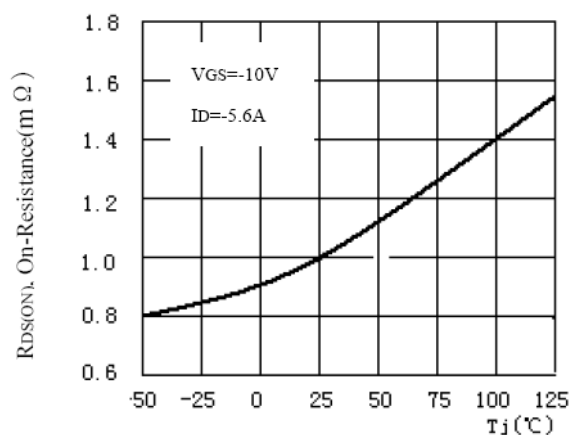


Figure4. On-Resistance Variation with Temperature

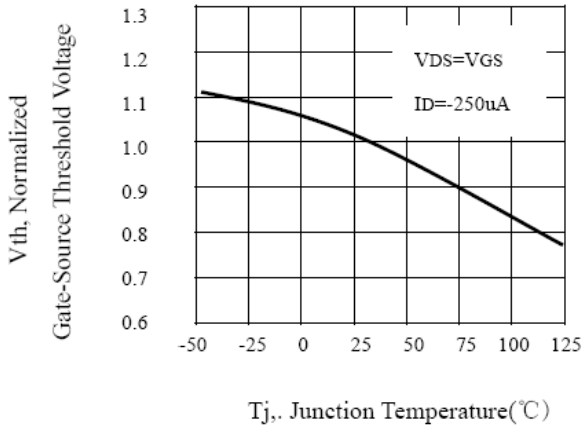


Figure 5. Gate Threshold Variation With Temperature

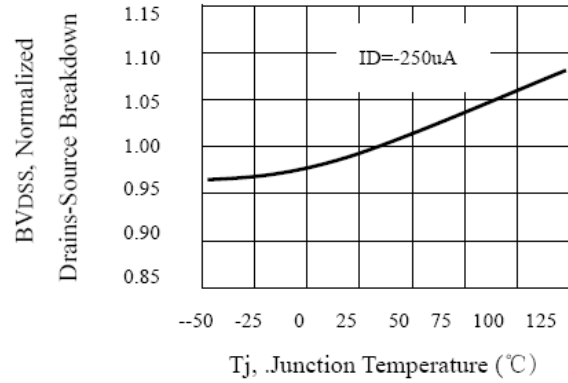


Figure 6. Breakdown Voltage Variation With Temperature

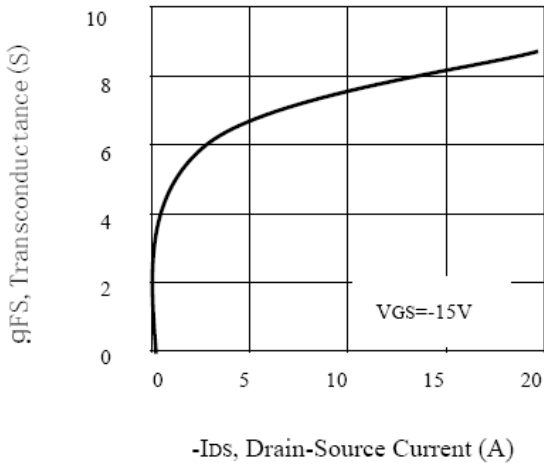


Figure 7. Transconductance Variation With Drain Current

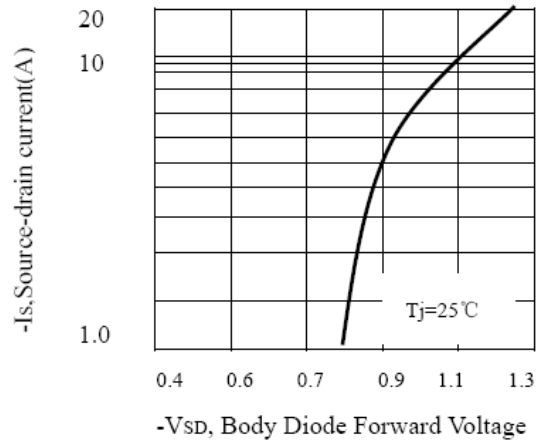


Figure 8. Body Diode Forward Voltage Variation with Source Current

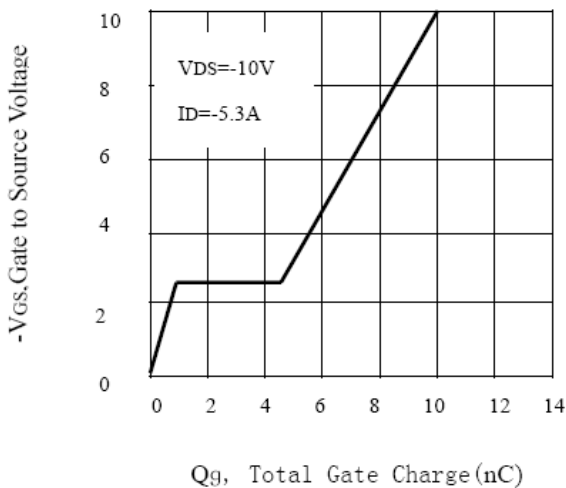


Figure 9. Gate Charge

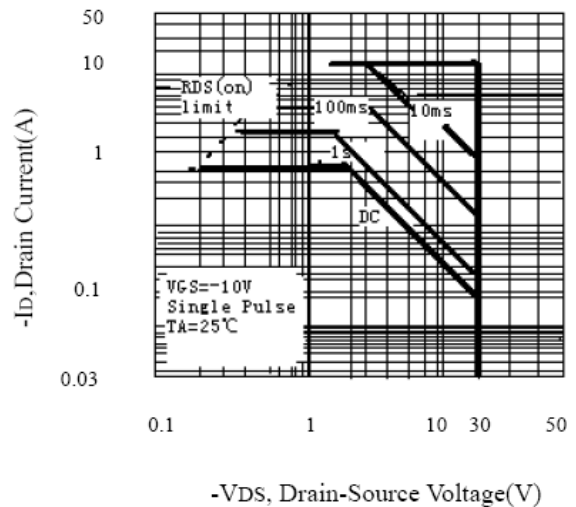


Figure 10. Maximum Safe Operating Area

**Copyright © 2008 by HOTCHIP TECHNOLOGY CO., LTD.**

The information appearing in this Data Sheet is believed to be accurate at the time of publication. However, HOTCHIP assumes no responsibility arising from the use of the specifications described. The applications mentioned herein are used solely for the purpose of illustration and HOTCHIP makes no warranty or representation that such applications will be suitable without further modification, nor recommends the use of its products for application that may present a risk to human life due to malfunction or otherwise. HOTCHIP's products are not authorized for use as critical components in life support devices or systems. HOTCHIP reserves the right to alter its products without prior notification. For the most up-to-date information, please visit our web site at <http://www.hotchip.net.cn>.