

## N-Channel Enhancement Mode MOSFET

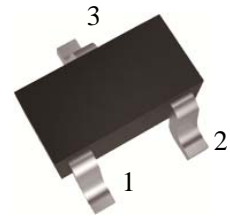
### Feature

- 30V/5.8A,  $R_{DS(ON)} = 35\text{m}\Omega(\text{MAX}) @ V_{GS} = 10\text{V}$ .  
 $R_{DS(ON)} = 40\text{m}\Omega(\text{MAX}) @ V_{GS} = 4.5\text{V}$ .  
 $R_{DS(ON)} = 55\text{m}\Omega(\text{MAX}) @ V_{GS} = 2.5\text{V}$ .
- Super High dense cell design for extremely low  $R_{DS(ON)}$ .
- Reliable and Rugged.
- SC-59 for Surface Mount Package.

### Applications

- Power Management
- Portable Equipment and Battery Powered Systems.

SC-59



1 : Gate 2 : Source 3 : Drain

### Absolute Maximum Ratings $T_A=25^\circ\text{C}$ Unless Otherwise noted

Parameter	Symbol	Limit	Units
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current-Continuous	$I_D$	5.8	A

### Electrical Characteristics $T_A=25^\circ\text{C}$ Unless Otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ.	Max	Units
<b>Off Characteristics</b>						
Drain to Source Breakdown Voltage	BVDSS	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	30	-	-	V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$	-	-	1	$\mu\text{A}$
Gate Body Leakage Current, Forward	$I_{GSSF}$	$V_{GS}=12\text{V}, V_{DS}=0\text{V}$	-	-	100	nA
Gate Body Leakage Current, Reverse	$I_{GSSR}$	$V_{GS}=-12\text{V}, V_{DS}=0\text{V}$	-	-	-100	nA
<b>On Characteristics</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu\text{A}$	0.6	-	1.5	V
Static Drain-source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=5.8\text{A}$	-	30	35	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}, I_D=5\text{A}$	-	33	40	$\text{m}\Omega$
		$V_{GS}=2.5\text{V}, I_D=4\text{A}$	-	45	55	$\text{m}\Omega$
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Drain-Source Diode Forward Voltage	VSD	$V_{GS}=0\text{V}, I_S=1.25\text{A}$			1.2	V

### Dynamic

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Units
$Q_g$	Total Gate Charge	$V_{DS}=15\text{V}, V_{GS}=10\text{V}, I_D=2\text{A}$		8.5	12	nC
$Q_{gs}$	Gate-Source Charge			1.1		
$Q_{gd}$	Gate-Drain Charge			1.8		
$t_{on}$	Turn-on Time	$V_{DD}=15\text{V}, I_D=2\text{A}, V_{GS}=10\text{V}, R_G=6\Omega$			40	nS
$t_{d(ON)}$	Turn-on Delay time			11		
$t_r$	Turn-on Rise Time			17		
$T_{d(off)}$	Turn-off Delay Time			37		
$t_f$	Turn-off Fall Time			20		
$t_{off}$	Turn-off Time					60

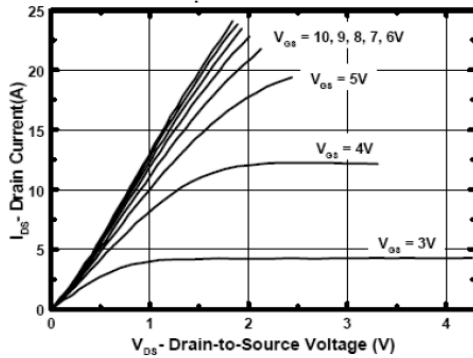


Figure 1. Output Characteristics

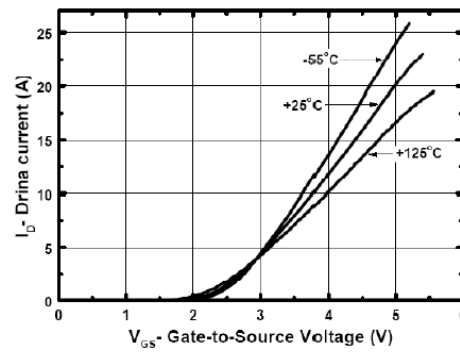


Figure 2. Transfer Characteristics

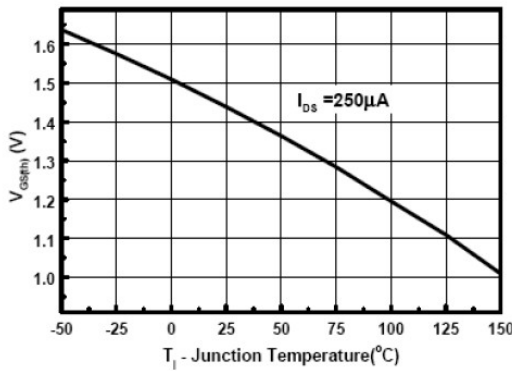


Figure 3. Gate Threshold Variation with Temperature

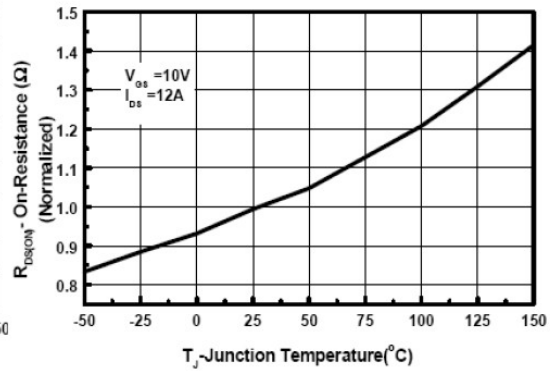


Figure 4. On-Resistance Variation with Temperature

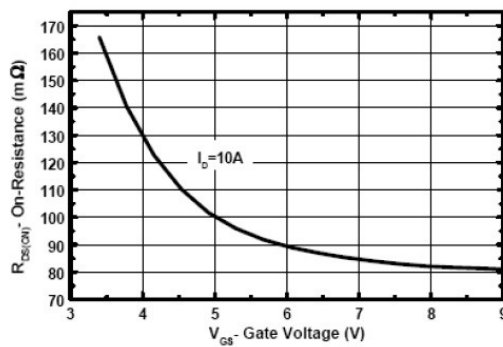


Figure 5. On-Resistance vs. Gate-to-Source Voltage

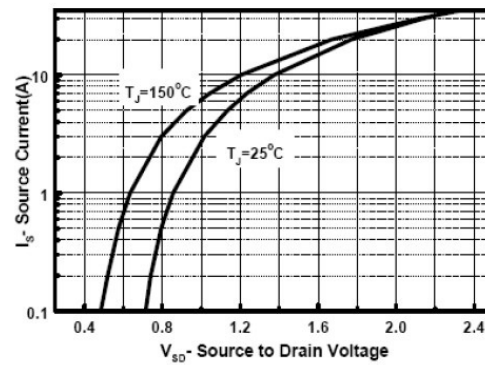


Figure 6. Source-Drain Diode Forward Voltage

## Package Outline Dimensions (UNIT: mm)

SC-59

