

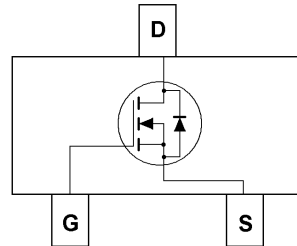
N-Channel Enhancement Mode MOSFET

Feature

- 20V/6A, $R_{DS(ON)} = 35m\Omega(MAX) @V_{GS} = 4.5V$.
 $R_{DS(ON)} = 45m\Omega(MAX) @V_{GS} = 2.5V$.
- Super High dense cell design for extremely low $R_{DS(ON)}$.
- Reliable and Rugged.
- SC-59 for Surface Mount Package.



SC-59



Applications

- LI-ION Protection Circuit

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

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous	I_D	6	A

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

Parameter	Symbol	Test Conditions	Min	Typ.	Max	Units
Off Characteristics						
Drain to Source Breakdown Voltage	BVDSS	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero-Gate Voltage Drain Current	IDSS	$V_{DS}=16V, V_{GS}=0V$	-	-	1	μA
Gate Body Leakage Current, Forward	IGSSF	$V_{GS}=10V, V_{DS}=0V$	-	-	100	nA
Gate Body Leakage Current, Reverse	IGSSR	$V_{GS}=-10V, V_{DS}=0V$	-	-	-100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.4	-	1.3	V
Static Drain-source	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=6.0A$	-	28	35	$m\Omega$
On-Resistance		$V_{GS}=2.5V, I_D=5.2A$	-	35	45	$m\Omega$
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	VSD	$V_{GS}=0V, I_S=1.5A$			1.2	V

DYNAMIC PARAMETERS					
Input Capacitance	Ciss	VGS=0V, VDS=8V, f=1MHz		800	pF
Output Capacitance	Coss			155	pF
Reverse Transfer Capacitance	Crss			125	pF
SWITCHING PARAMETERS					
Total Gate Charge	Qg	VGS=4V, VDS=10V, ID=4A		11	nC
Gate Source Charge	Qgs			2.2	nC
Gate Drain Charge	Qgd			2.5	nC
Turn-On Delay Time	tD(on)	VGS=4V, VDS=10V, ID=1A, RGEN=10Ω, RI=10Ω		18.3	ns
Turn-On Rise Time	tr			4.8	ns
Turn-Off Delay Time	tD(off)			43.5	ns
Turn-Off Fall Time	tf			20	ns

**Nanker reserves the right to improve product design, functions and reliability without notice.

Typical Characteristics

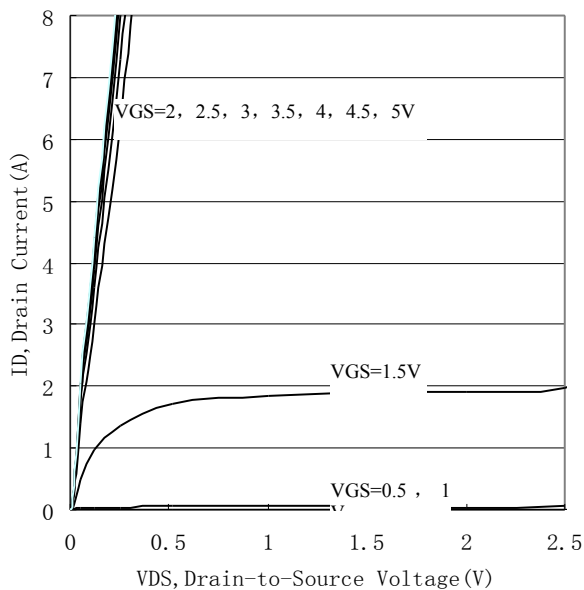


Figure 1. Output Characteristics

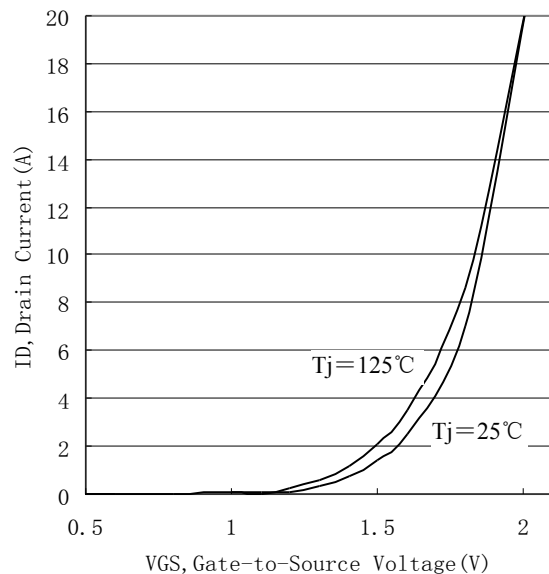


Figure 2. Transfer Characteristics

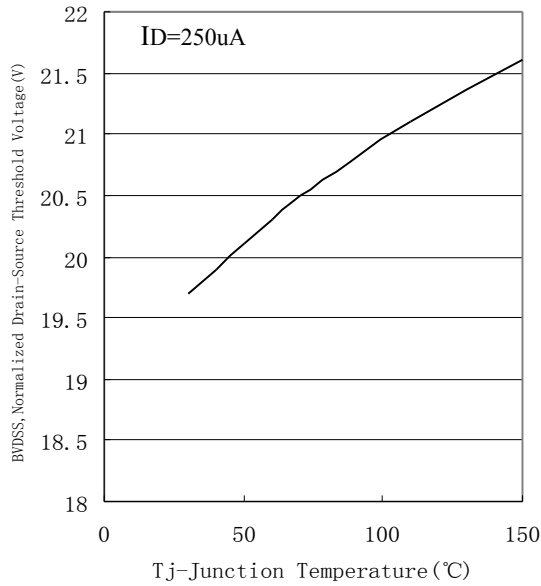


Figure 3. Breakdown Voltage Variation with Temperature

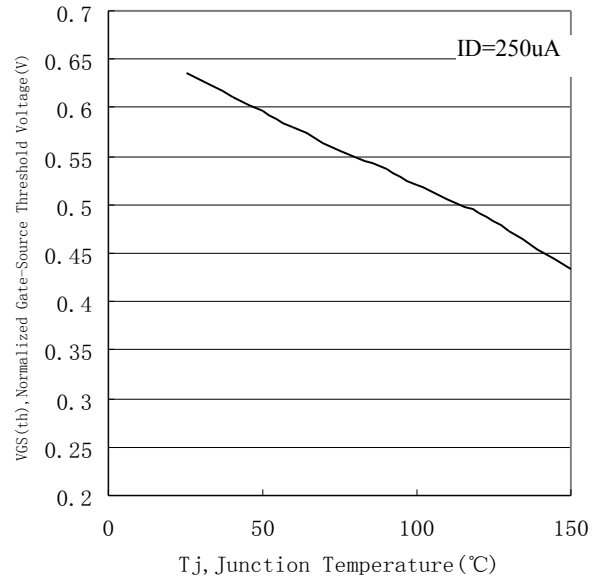


Figure 4. Gate Threshold Variation with Temperature

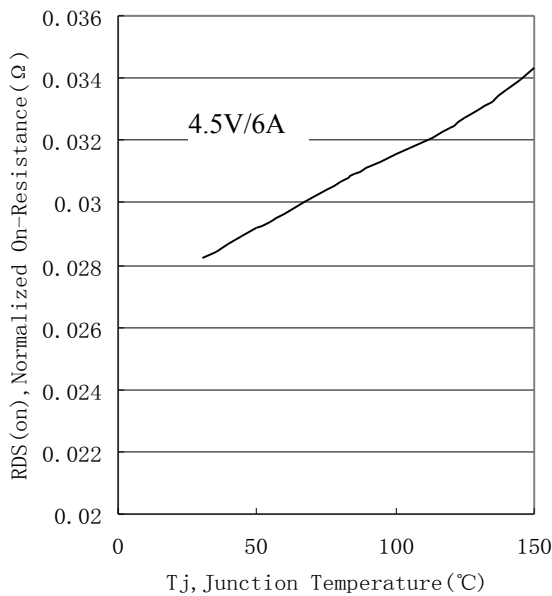


Figure 5. On-Resistance Variation with Temperature

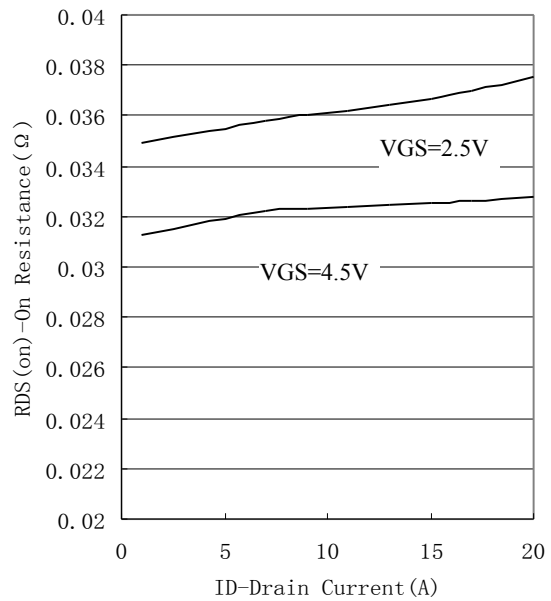


Figure 6. On-Resistance vs. Drain Current

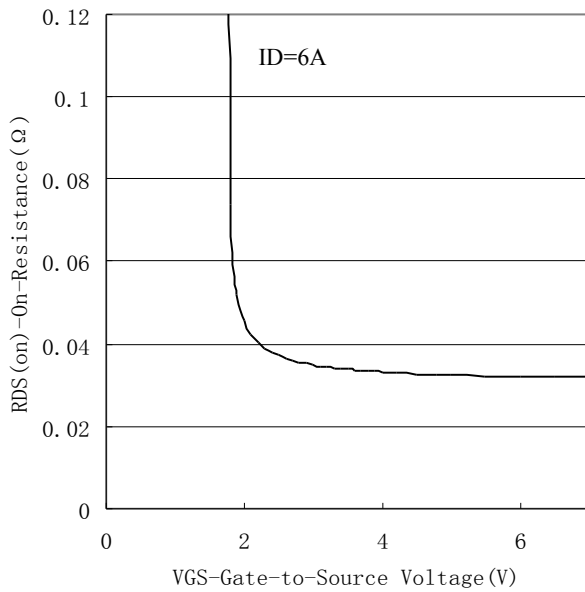


Figure 7. On-Resistance vs. Gate-to-Source Voltage

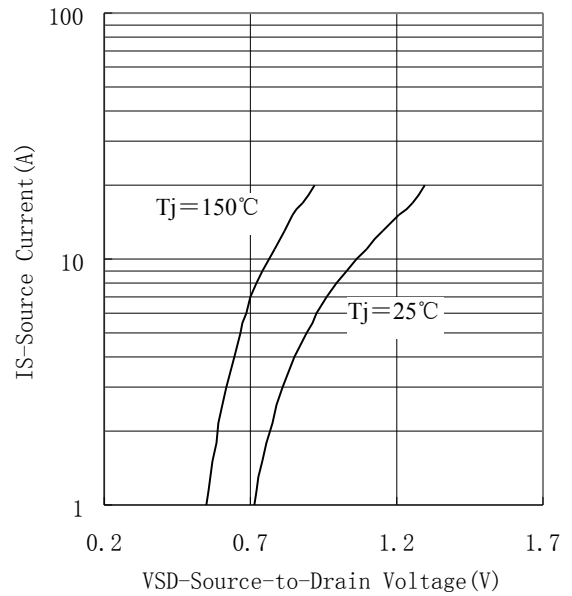


Figure 8. Source-Drain Diode Forward

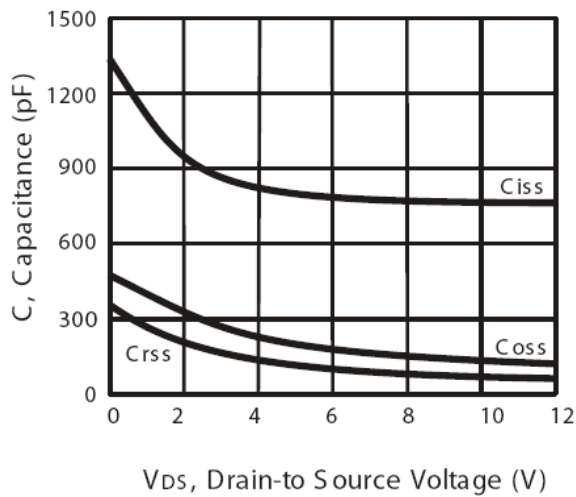


Figure 9. Capacitance

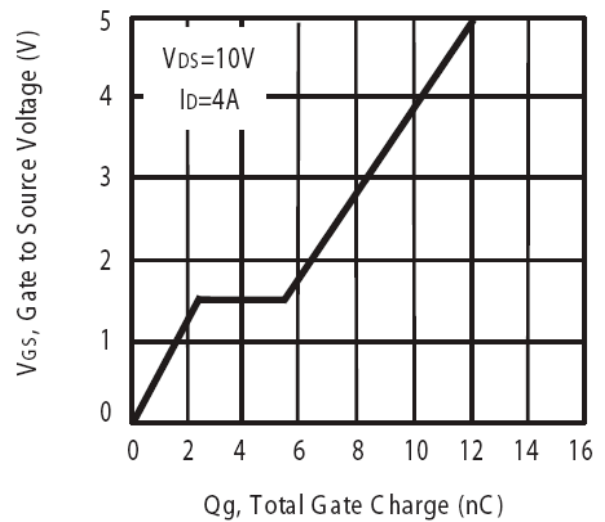


Figure 10. Gate Charge

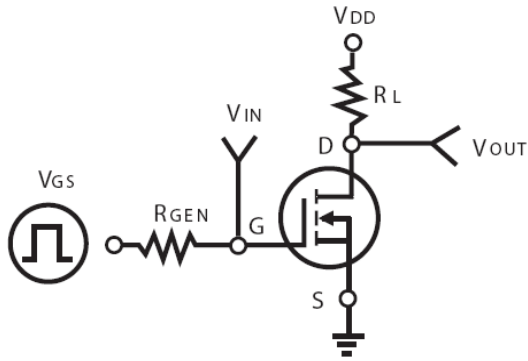


Figure 11. Switching Test Circuit

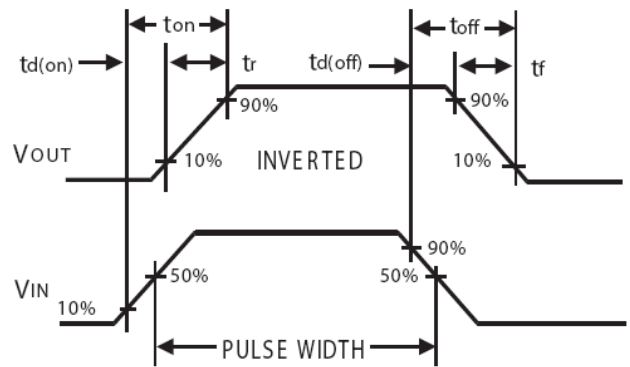
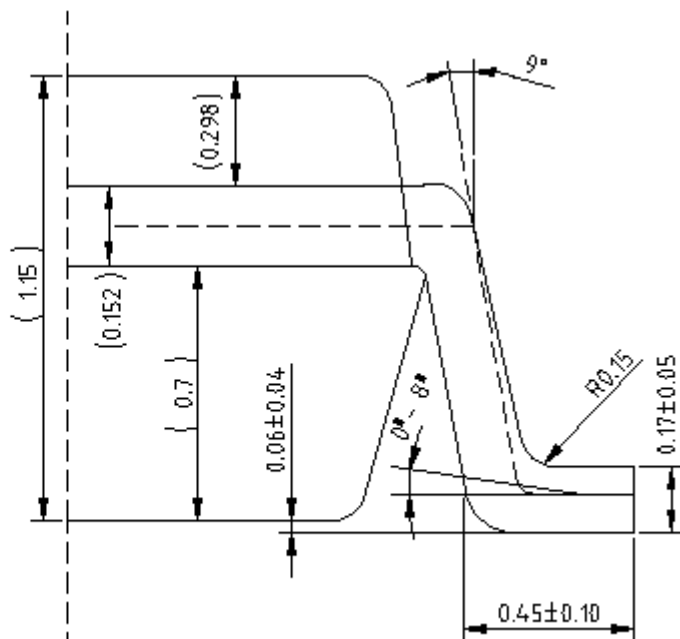
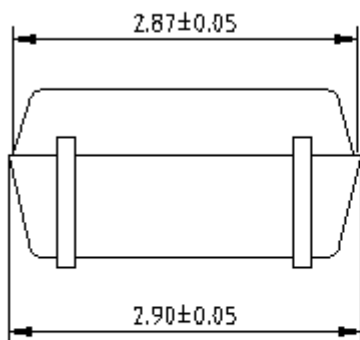
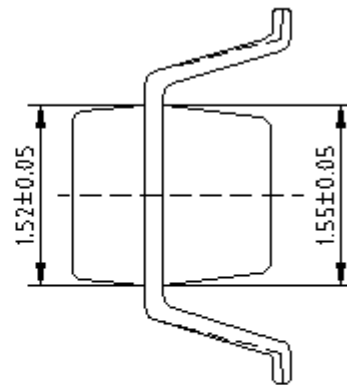
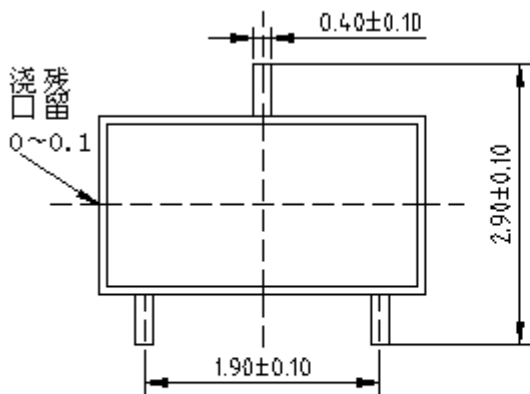
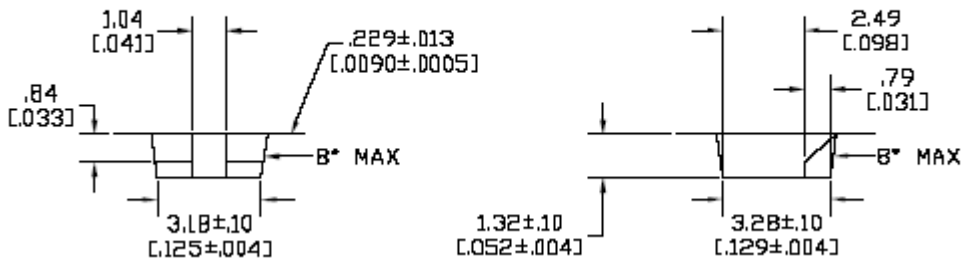
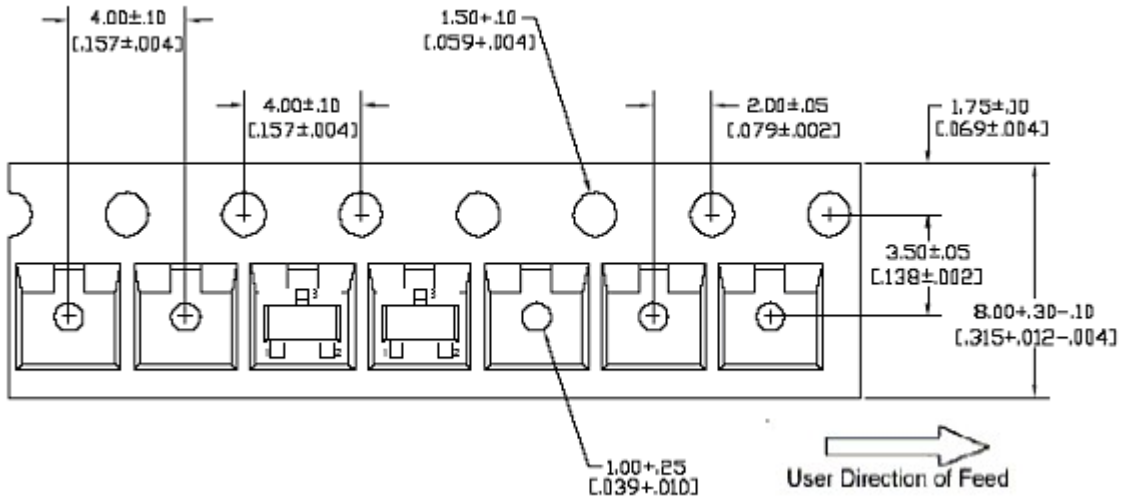


Figure 12. Switching Waveforms

SC-59 Package Outline Dimensions (UNIT: mm)



SC-59 Carrier Tape



SC-59 Carrier Reel

