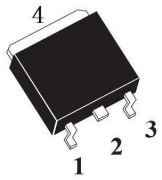
Si1110 /1116

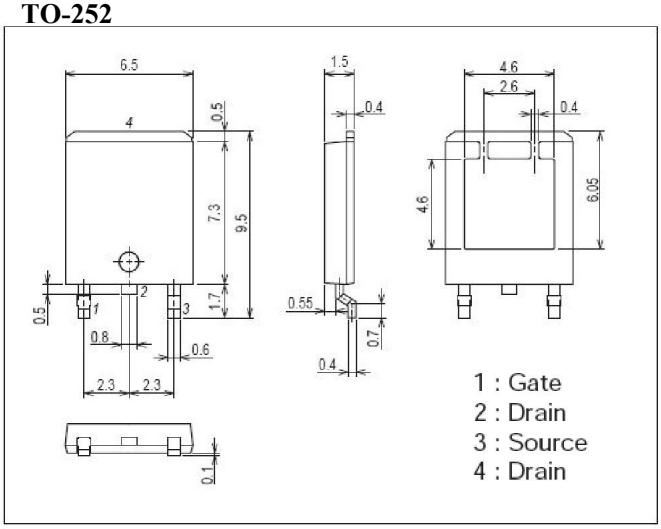
Features

- Low On resistance.
- 4.5V drive.
- RoHS compliant.



Package Dimensions

TO-252



Specifications

Absolute Maximum Ratings at T_a=25^{0}C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		100	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		18	A
Drain Current (Pulse)	I_{DP}	PW≤10uS, duty cycle≤1%	45	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1000mm^2×0.8mm) 1unit	20	W
Total Dissipation	P_T	Mounted on a ceramic board (1000mm^2×0.8mm)	25	W
Channel Temperature	T_{ch}		150	^{0}C
Storage Temperature	T_{stg}		-55~+150	^{0}C

Electrical Characteristics at T_a=25^{0}C

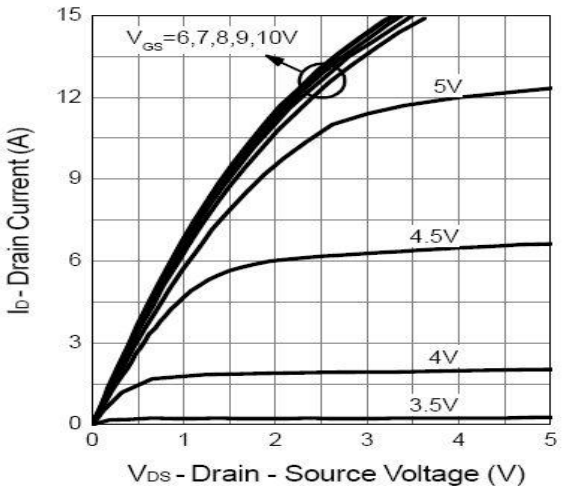
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=250uA, V_{GS}=0V	100	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V, V_{GS}=0V	-	-	1	uA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V	-	-	±10	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250uA	1	2	3	V
Static Drain-to-Source On-State Resistance	$R_{DS(ON)}$	I_D=10A, V_{GS}=10V	-	78	100	mΩ
	$R_{DS(ON)}$	I_D=8A, V_{GS}=4.5V	-	90	125	mΩ
Input Capacitance	C_{iss}	V_{DS}=30V, V_{GS}=0V, f=1MHz	-	660	-	pF
Output Capacitance	C_{oss}	V_{DS}=30V, V_{GS}=0V, f=1MHz	-	46	-	pF
Reverse Transfer Capacitance	C_{rss}	V_{DS}=30V, V_{GS}=0V, f=1MHz	-	20	-	pF

Electrical Characteristics at T_a=25^{0}C (Continued)

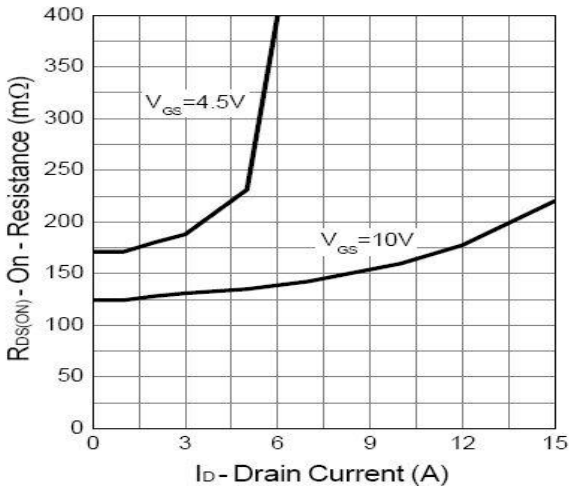
Parameter	Symbol	Conditions	Ratings			Unit
			min	Typ	max	
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=30V, R_L=30Ω, R_{GEN}=6Ω, V_{GS}=10V	-	11	21	nS
Rise Time	t_r		-	10	19	nS
Turn-off Delay Time	$t_{d(off)}$		-	21	39	nS
Fall Time	t_f		-	13	24	nS
Total Gate Charge	Q_g	V_{DS}=50V, V_{GS}=10V, I_D=5A	-	9.5	13	nC
Gate-to-Source Charge	Q_{gs}		-	1.9	-	nC
Gate-to-Drain "Miller" Charge	Q_{gd}		-	2.1	-	nC
Diode Forward Voltage	V_{SD}	I_S=3A, V_{GS}=0V	-	0.8	1.1	V

Typical Characteristics at T_a=25^{0}C

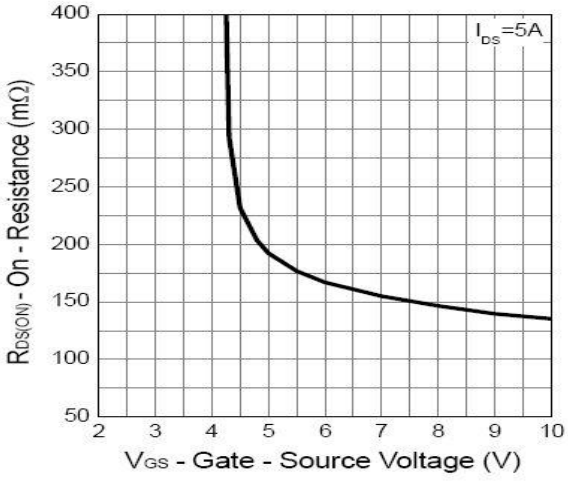
Output Characteristics



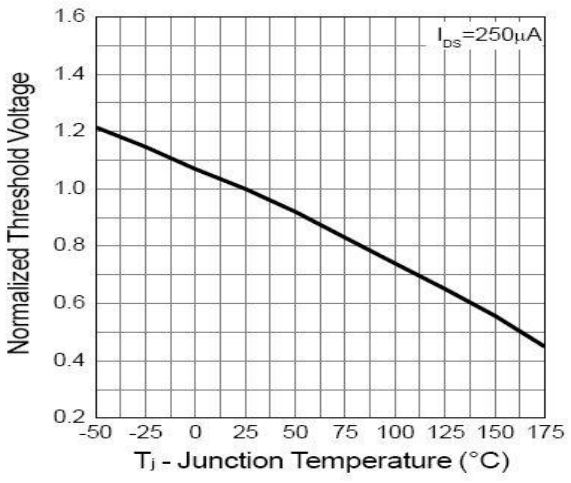
Drain-Source On Resistance



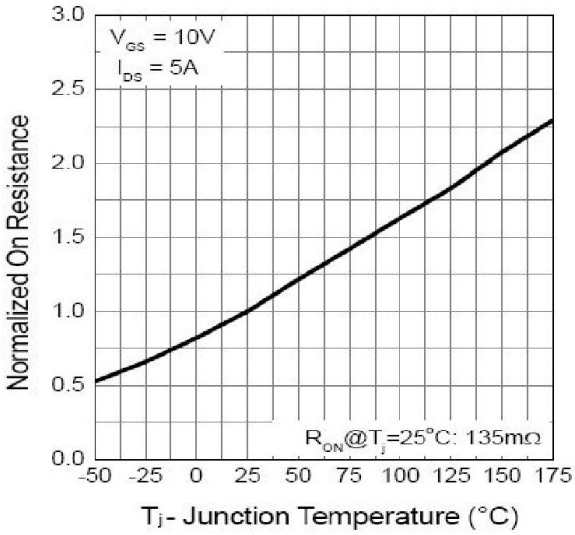
Gate-Source On Resistance



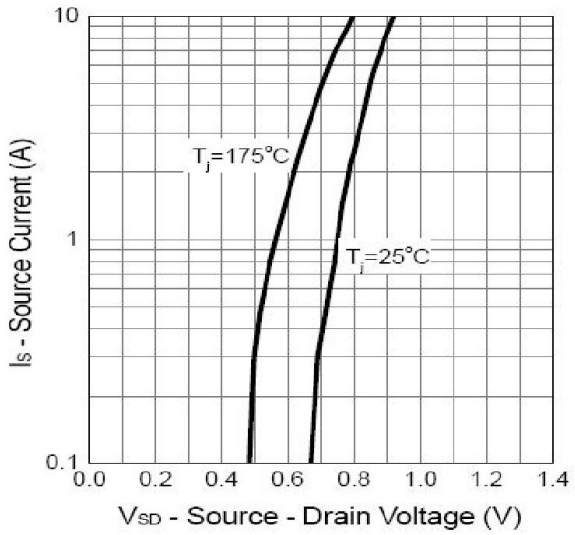
Gate Threshold Voltage



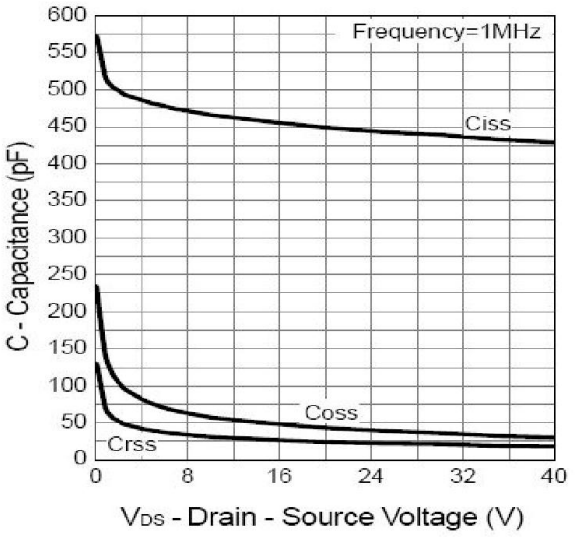
Drain-Source On Resistance



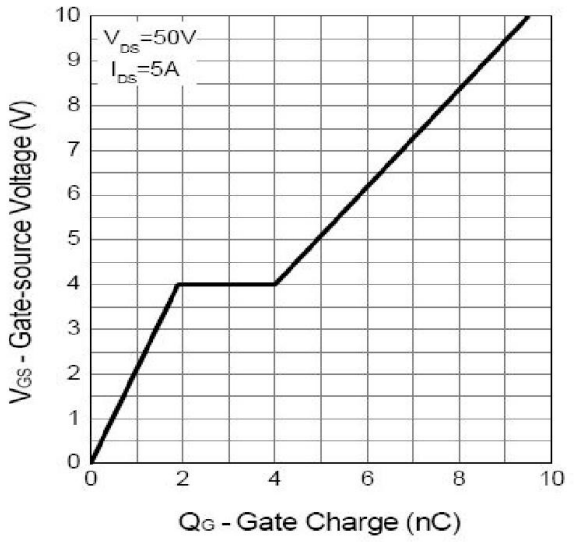
Source-Drain Diode Forward



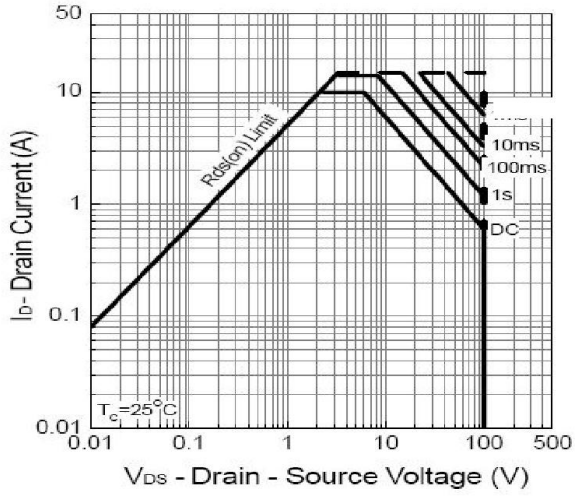
Capacitance



Gate Charge



Safe Operation Area



Thermal Transient In . ce