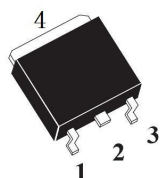


Single P-Channel Enhancement Mode MOSFET

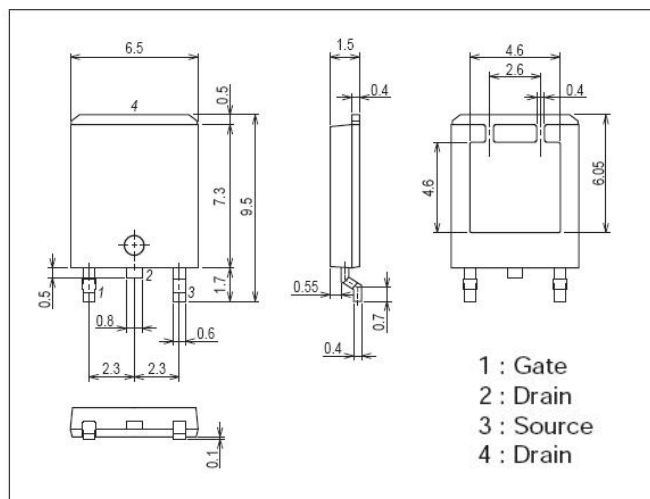
Features

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



Package Dimensions

TO-252



Specifications

Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-30	V
Gate-to-Source Voltage	V_{GSS}		+20	V
Drain Current (DC)	I_D		-25	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-50	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	$^{\circ}\text{C}$
Storage Temperature	T_{stg}		-55~+150	$^{\circ}\text{C}$

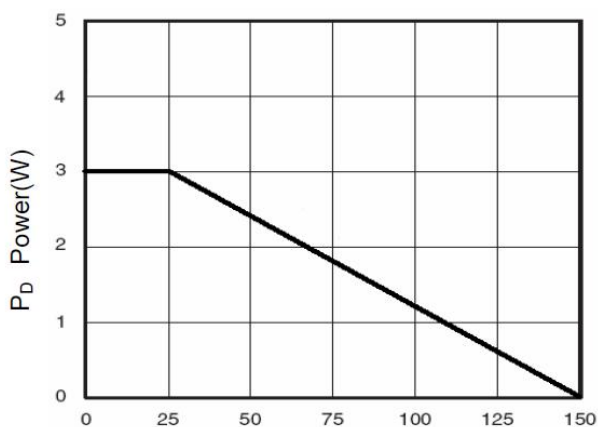
Electrical Characteristics at $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-250\mu\text{A}$, $V_{GS}=0\text{V}$	-40	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-32\text{V}$, $V_{GS}=0\text{V}$	-	-	-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$	-1.7	-2.0	-2.5	V
Static Drain-to-Source On-State Resistance	$R_{DS(ON)}$	$I_D=-12\text{A}$, $V_{GS}=-10\text{V}$	-	33	45	$\text{m}\Omega$
	$R_{DS(ON)}$	$I_D=-5\text{A}$, $V_{GS}=-4.5\text{V}$	-	47	68	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-20\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	-	1110	-	pF
Output Capacitance	C_{oss}	$V_{DS}=-20\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	-	125	-	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-20\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	-	70	-	pF

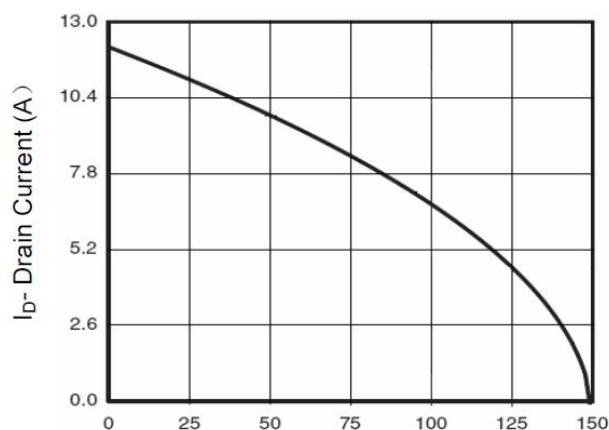
Electrical Characteristics at $T_a=25^{\circ}\text{C}$ (Continued)

Parameter	Symbol	Conditions	Ratings			Unit
			min	Typ	max	
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=-20V, R_L=20\Omega, R_{GEN}=6\Omega,$ $V_{GS}=-10V$	-	12	23	nS
Rise Time	t_r		-	15.5	29	nS
Turn-off Delay Time	$t_{d(off)}$		-	43	79	nS
Fall Time	t_f		-	17.5	33	nS
Total Gate Charge	Q_g	$V_{DS}=-20V, V_{GS}=-10V, I_D=-12A$	-	17.8	23	nC
Gate-to-Source Charge	Q_{gs}		-	2.2	-	nC
Gate-to-Drain “Miller” Charge	Q_{gd}		-	5	-	nC
Diode Forward Voltage	V_{SD}	$I_S=-2A, V_{GS}=0V$	-	-0.8	-1.3	V

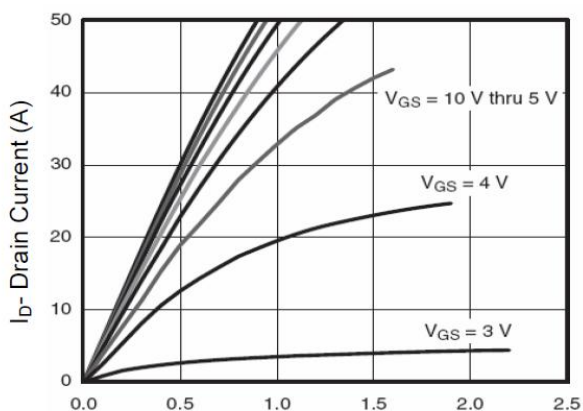
Typical Characteristics at $T_a=25^\circ C$



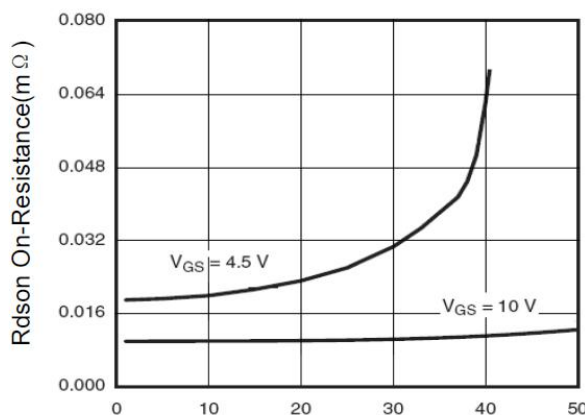
T_J -Junction Temperature(°C)
Figure 3 Power Dissipation



T_J -Junction Temperature(°C)
Figure 4 Drain Current



V_{DS} Drain-Source Voltage (V)
Figure 5 Output Characteristics



I_D - Drain Current (A)
Figure 6 Drain-Source On-Resistance

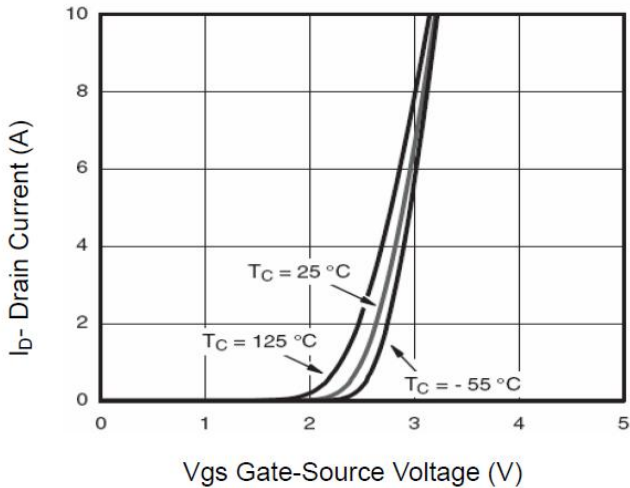


Figure 7 Transfer Characteristics

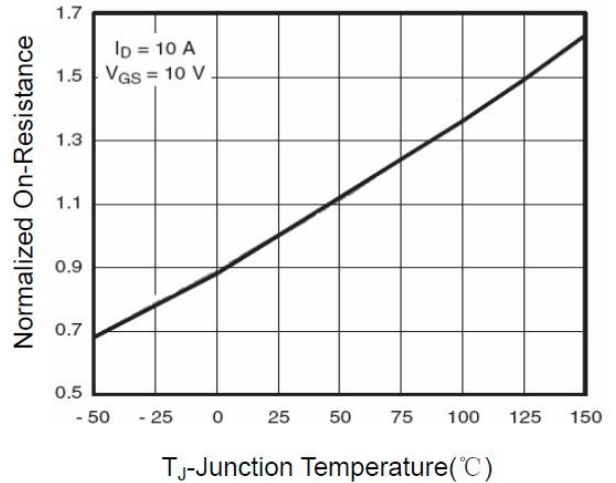


Figure 8 Drain-Source On-Resistance

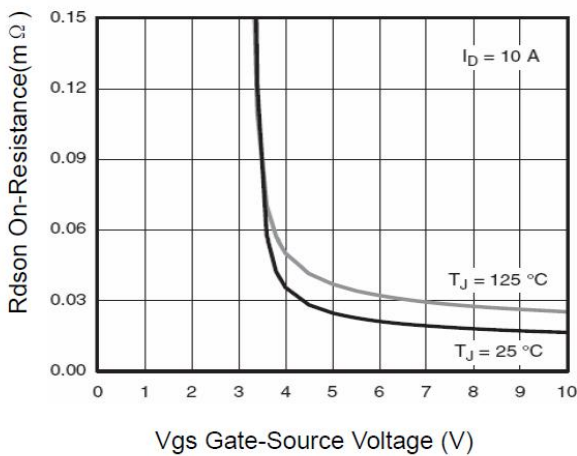


Figure 9 Rds(on) vs Vgs

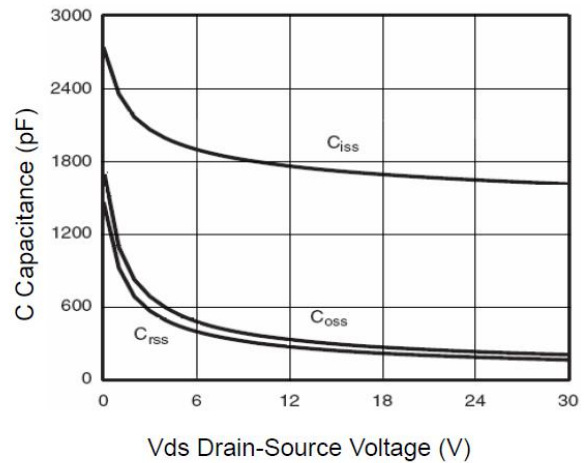


Figure 10 Capacitance vs Vds

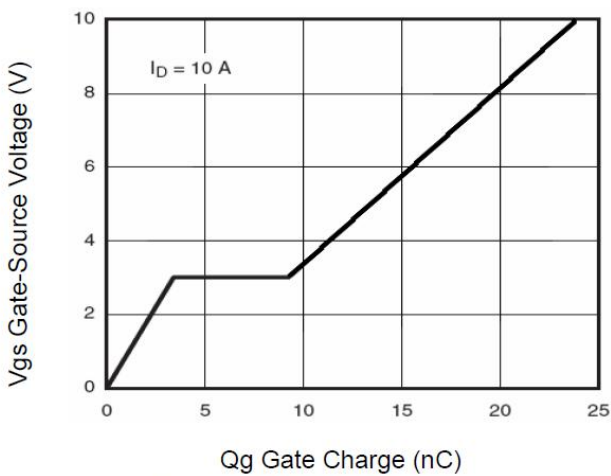


Figure 11 Gate Charge

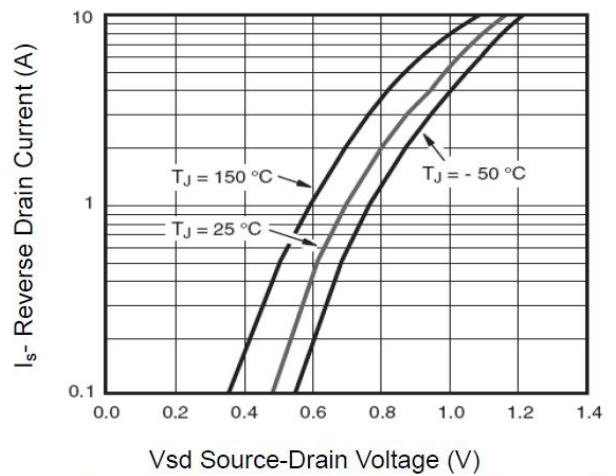


Figure 12 Source- Drain Diode Forward

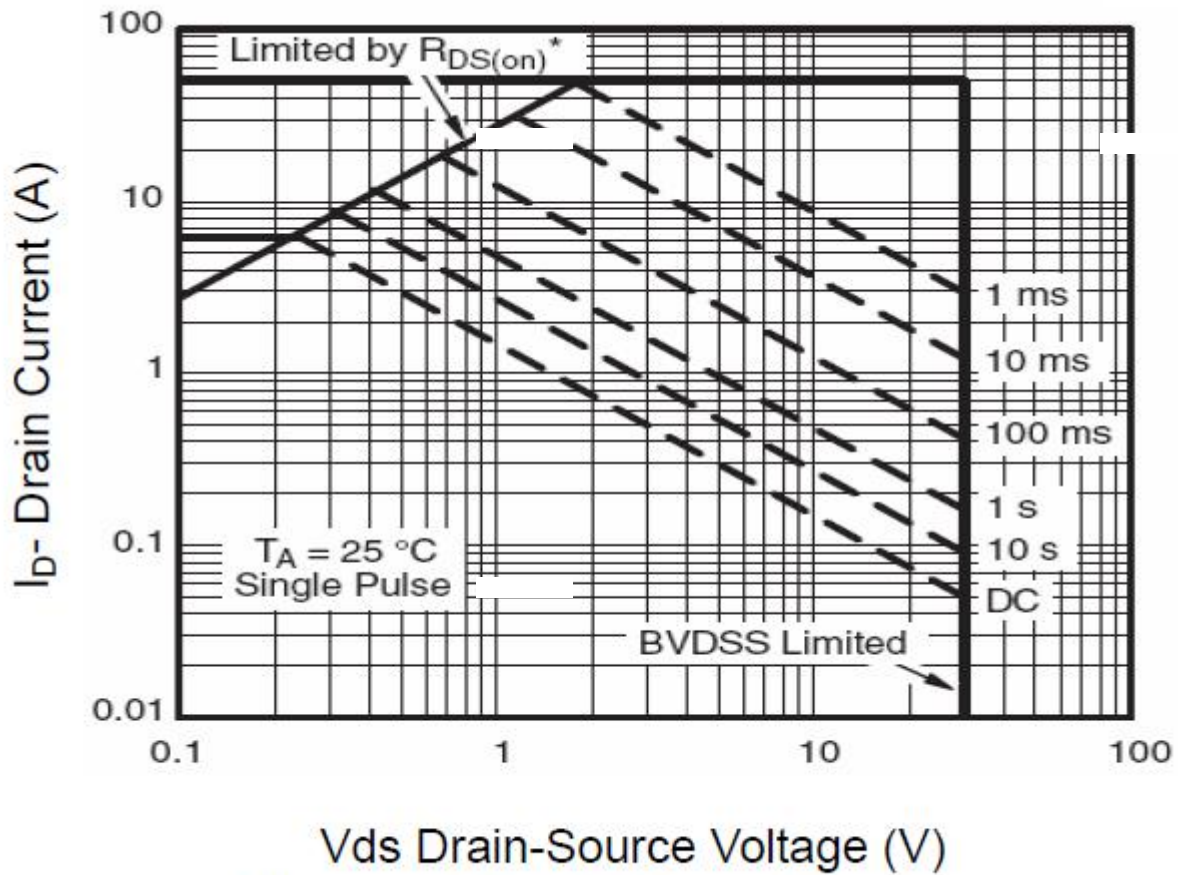


Figure 13 Safe Operation Area

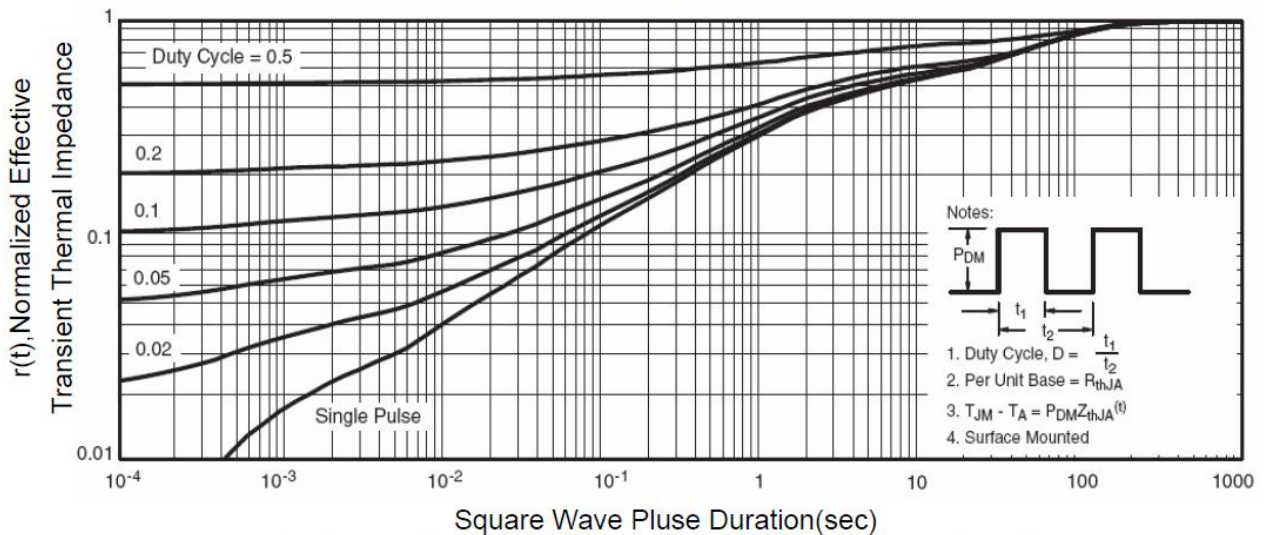


Figure 14 Normalized Maximum Transient Thermal Impedance

