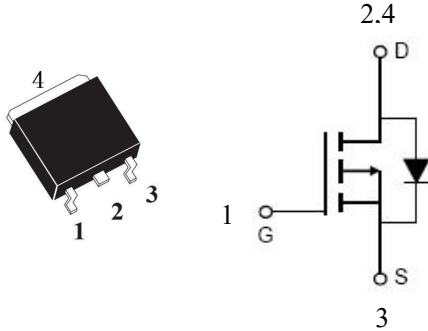


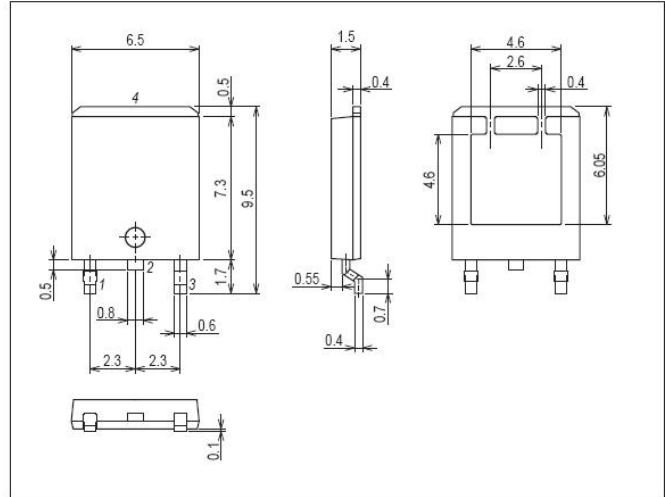
### Features

- Low On resistance.
- -10V drive.
- RoHS compliant.



### Package Dimensions

TO-252



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-30	V
Gate-to-Source Voltage	$V_{GSS}$		+20	V
Drain Current (DC)	$I_D$		-57	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu S$ , duty cycle $\leq 1\%$	-36	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) 1unit	52	W
Avalanche energy	$E_{AS}$	$L=0.1mH$	153	mJ
Channel Temperature	$T_{ch}$		150	$^{\circ}C$
Storage Temperature	$T_{stg}$		-55~+150	$^{\circ}C$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-250\mu A$ , $V_{GS}=0V$	-30	-	-	V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-40V$ , $V_{GS}=0V$	-	-	-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 25V$ , $V_{DS}=0V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu A$	-1.2	-1.35	-1.5	V
Static Drain-to-Source On-State Resistance	$R_{DS(ON)}$	$I_D=-20A$ , $V_{GS}=-10V$	-	-	10	m $\Omega$
	$R_{DS(ON)}$	$I_D=-20A$ , $V_{GS}=-4.5V$	-	-	16	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-15V$ , $V_{GS}=0V$ , $f=1MHz$	-	3448	-	pF
Output Capacitance	$C_{oss}$	$V_{DS}=-15V$ , $V_{GS}=0V$ , $f=1MHz$	-	508	-	pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-15V$ , $V_{GS}=0V$ , $f=1MHz$	-	421	-	pF

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	Typ	max	
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=-15\text{V}, R_L=0.75\Omega, R_{GEN}=3\Omega,$ $V_{GS}=-10\text{V}$	-	8	-	nS
Rise Time	$t_r$		-	17.8	-	nS
Turn-off Delay Time	$t_{d(off)}$		-	78.4	-	nS
Fall Time	$t_f$		-	43.6	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=-10\text{V}, V_{GS}=-10\text{V}, I_D=-20\text{A}$	-	33	-	nC
Gate-to-Source Charge	$Q_{gs}$		-	10.7	-	nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$		-	12.8	-	nC
Diode Forward Voltage	$V_{SD}$	$I_S=-1\text{A}, V_{GS}=0\text{V}$	-	-	-1.2	V

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

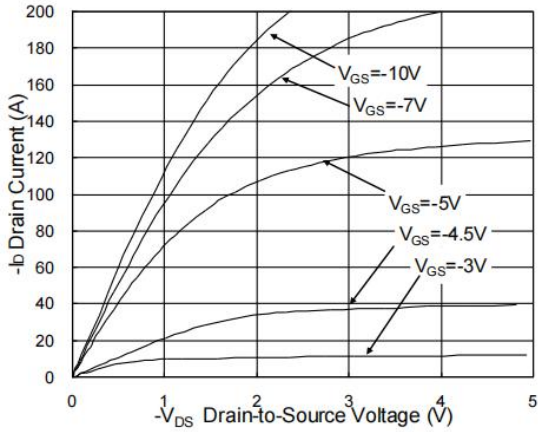


Fig.1 Typical Output Characteristics

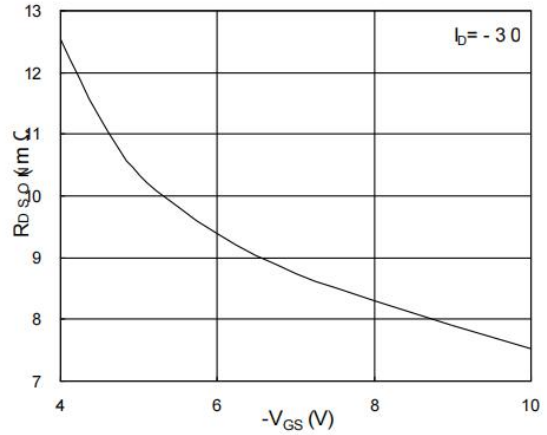


Fig.2 On-Resistance v.s Gate-Source

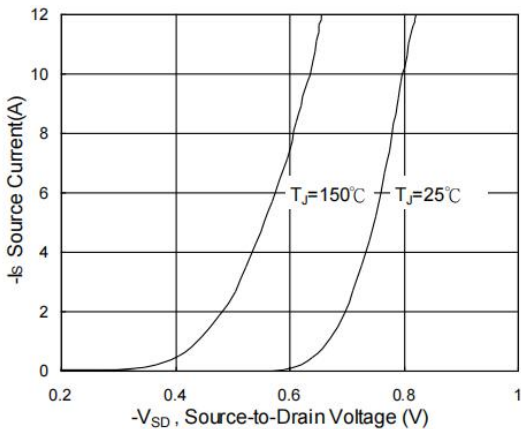


Fig.3 Forward Characteristics Of Reverse

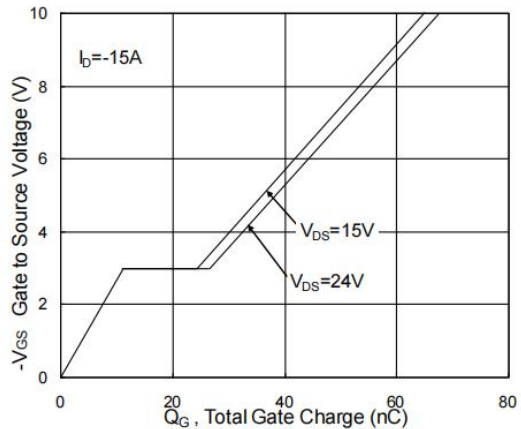


Fig.4 Gate-Charge Characteristics

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

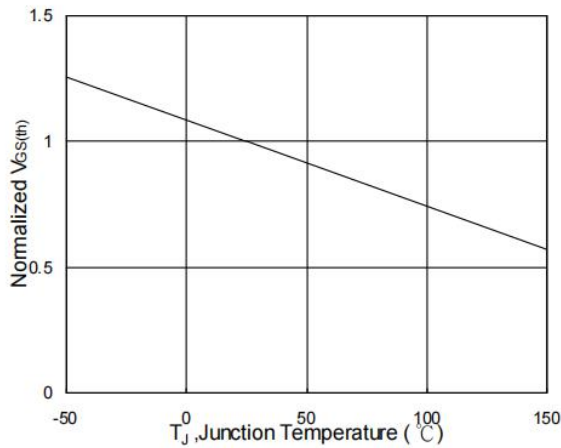


Fig.5 Normalized  $V_{GS(th)}$  v.s  $T_J$

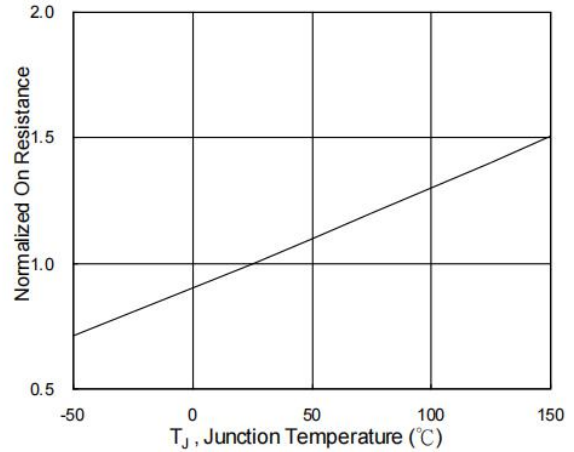


Fig.6 Normalized  $R_{DS(on)}$  v.s  $T_J$

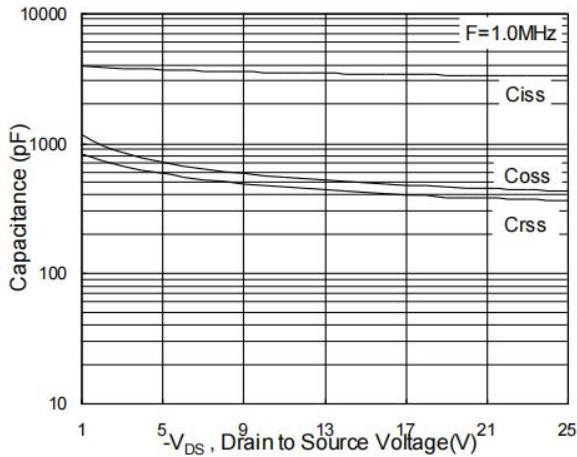


Fig.7 Capacitance

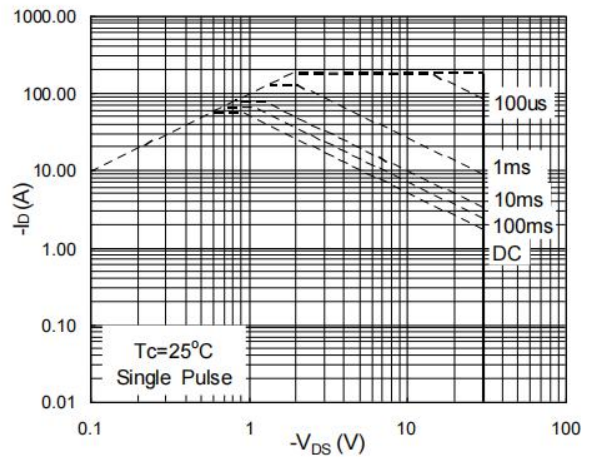


Fig.8 Safe Operating Area

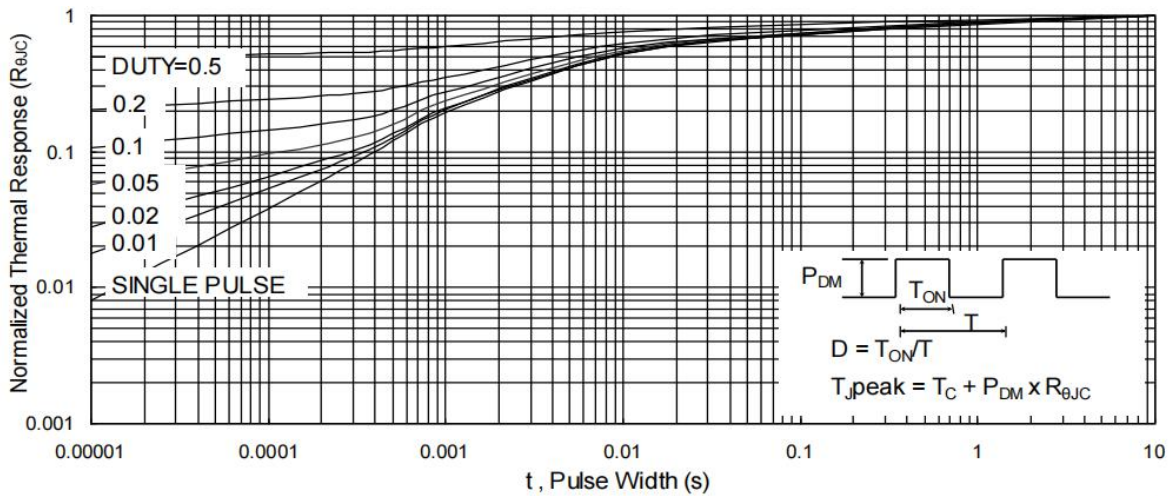


Fig.9 Normalized Maximum Transient Thermal Impedance

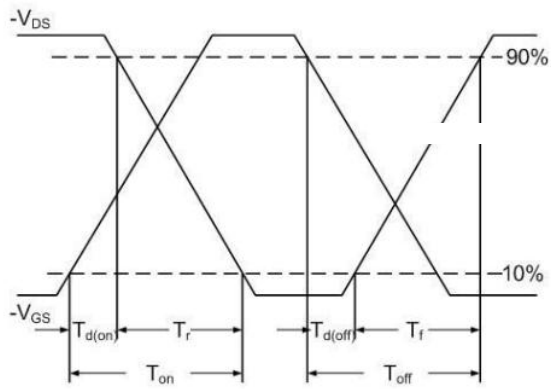


Fig.10 Switching Time Waveform

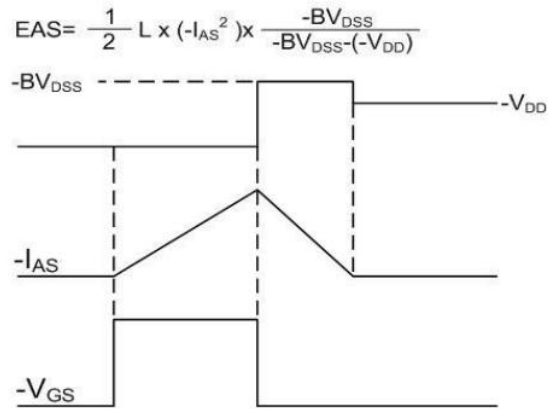


Fig.11 Unclamped Inductive Switching Waveform