

■ PRODUCT CHARACTERISTICS

VDSS	-60V
$R_{DS(on)Typ}(V_{GS} = -4.5V)$	15mΩ
$R_{DS(on)Typ}(V_{GS} = -10V)$	12.5mΩ
ID	-82A

■ APPLICATIONS

PWM applications

Load switch

Power management

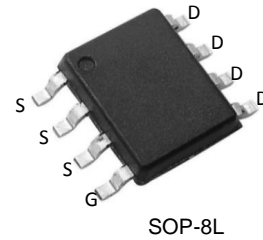
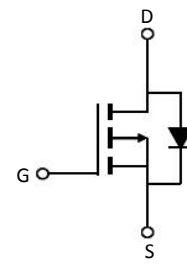
■ FEATURES

High Power and current handing capability

Lead free product is acquired

Surface mount package

Symbol



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT6715S	SOP-8L	4000pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS($T_C=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	-60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	-82	A
Continuous Drain Current(100°C)	I_D	-54	A
Pulsed Drain Current	I_{DM}	-328	A
Power Dissipation	P_D	150	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	4.2	$^{\circ}C/W$
Junction Temperature	T_J	+175	$^{\circ}C$
Operation and Storage Temperature	T_{STG}	-55 ~ +175	$^{\circ}C$

■ ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.2	-	-2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-20A$	-	12.5	15	$m\Omega$
		$V_{GS}=-4.5V, I_D=-20A$	-	15	19	$m\Omega$
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-10A$	10	-	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V,$ $F=1.0\text{MHz}$	-	5604	-	PF
Output Capacitance	C_{oss}		-	356	-	PF
Reverse Transfer Capacitance	C_{rss}		-	265	-	PF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-30V, R_L=1.5\Omega$ $V_{GS}=-10V, R_G=3\Omega$	-	18	-	nS
Turn-on Rise Time	t_r		-	20	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	55	-	nS
Turn-Off Fall Time	t_f		-	10	-	nS
Total Gate Charge	Q_g	$V_{DS}=-30V, I_D=-20A,$ $V_{GS}=-10V$	-	62.1	-	nC
Gate-Source Charge	Q_{gs}		-	9.3	-	nC
Gate-Drain Charge	Q_{gd}		-	16.8	-	nC
Drain-sourcediode characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-20A$	-	-	-1.2	V
Diode Forward Current	I_S		-	-	-82	A
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ\text{C}, I_F = -20A$	-	49	-	nS
Reverse Recovery Charge	Q_{rr}	$di/dt = -100A/\mu s$	-	71	-	nC

■ TYPICAL CHARACTERISTICS

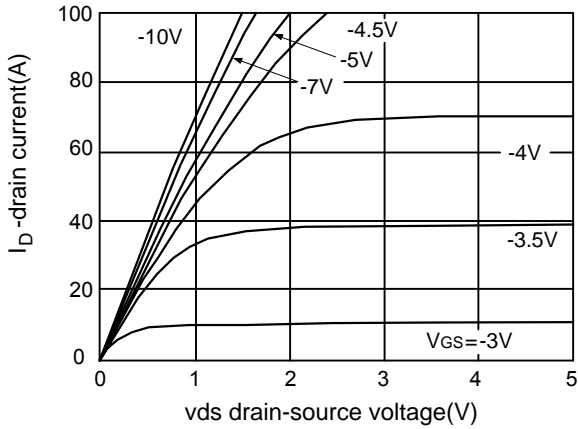


Fig.1 output characteristics

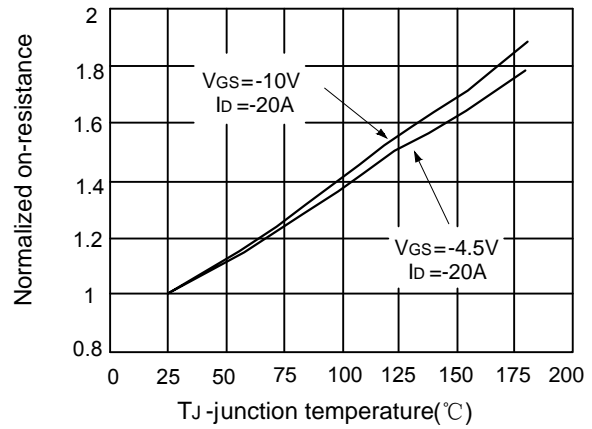


Fig.2 rdson-junction temperature

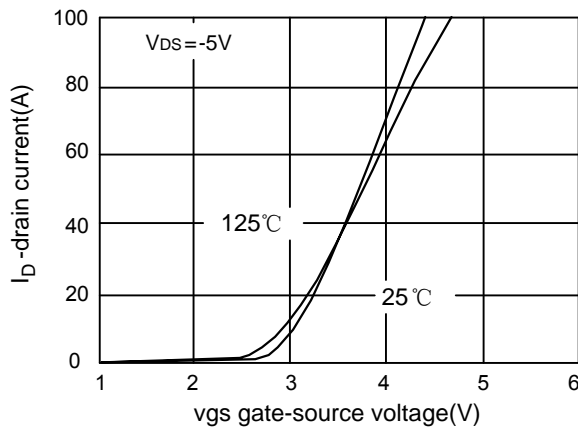


Fig.3 transfer characteristics

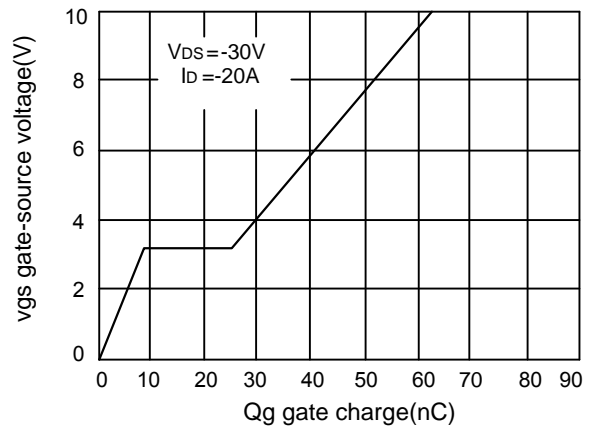


Fig.4 gate charge

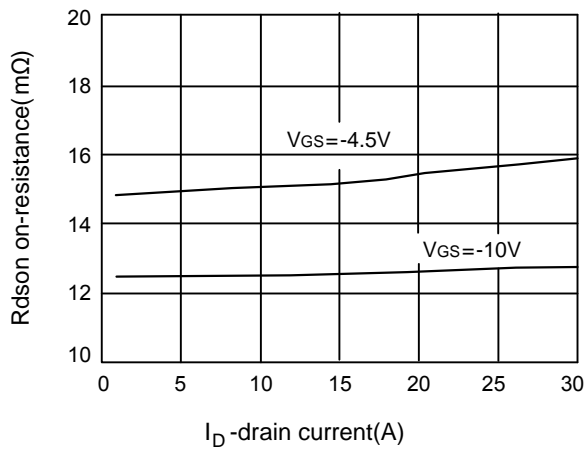


Fig.5 drain-source on-resistance

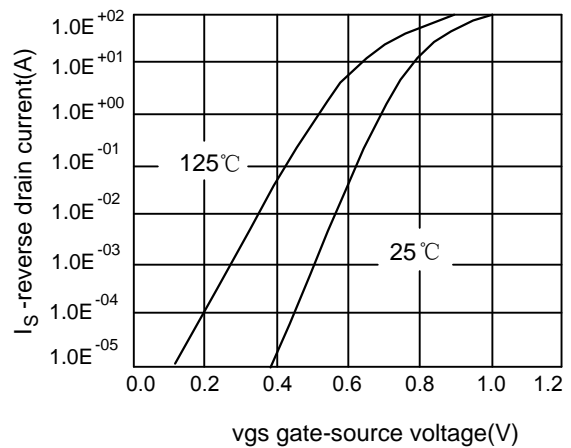


Fig.6 source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

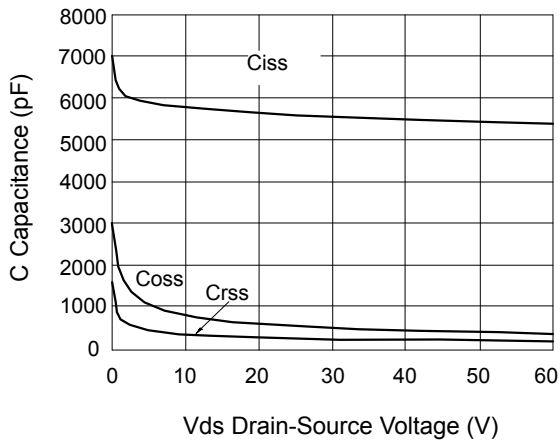


Figure 7 capacitance vs vds

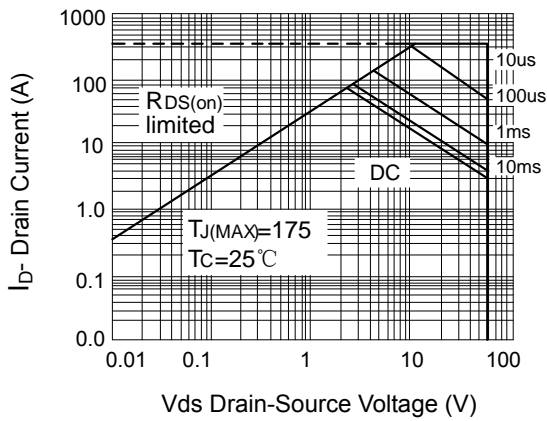
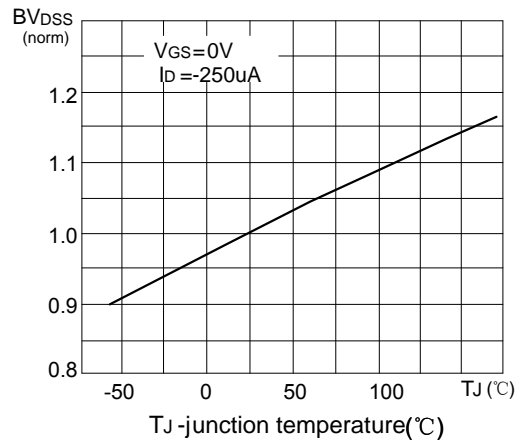


Figure 9 safe operation area

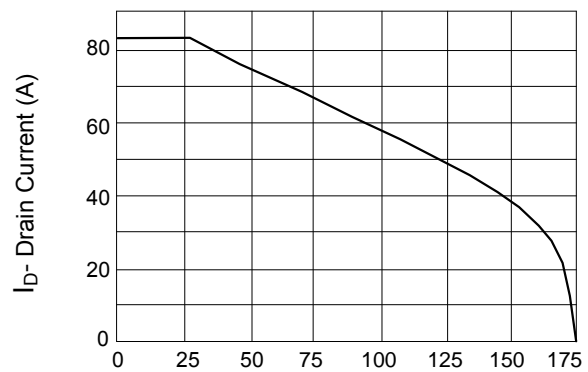


Figure 10 ID current derating vs junction temperature

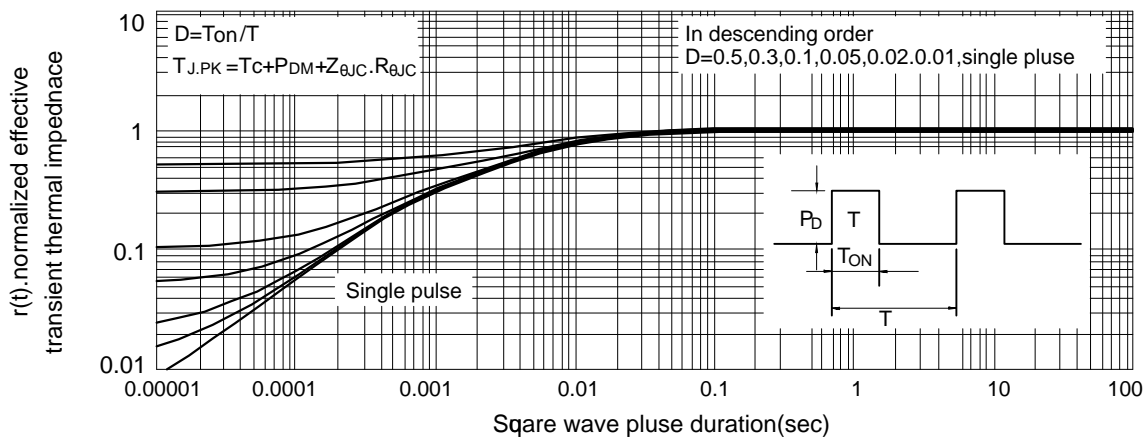


Fig.11 normalized maximum transient thermal impedance