

■ PRODUCT CHARACTERISTICS

VDSS	600V
$R_{DS(on)max}(V_{GS}=10V)$	0.055Ω
Qg@type	40.2nC
ID	45A

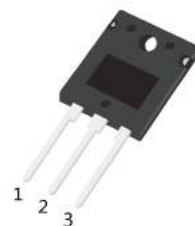
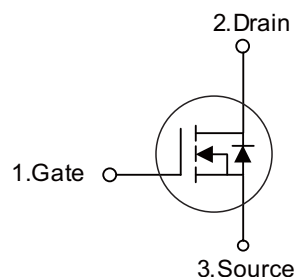
■ APPLICATIONS

- * Power factor correction
- * Switched mode power supplies
- * Uninterruptible power supply

■ FEATURES

- * low $R_{DS(on)}$
- * low gate charge
- * 100% UIS tested
- * RoHS compliant

Symbol



TO-247S

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT60R070W	TO-247S	30 pieces/Tube

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	600	V
Continuous drain current	($T_C = 25^{\circ}\text{C}$)	I_D	45	A
	($T_C = 100^{\circ}\text{C}$)		27	A
Pulsed drain current		I_{DM}	135	A
Gate-Source voltage		V_{GSS}	± 30	V
Avalanche energy, single pulse		E_{AS}	180	mJ
Power Dissipation		P_D	312	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$
Continuous diode forward current		I_S	45	A
Diode pulse current		$I_{S,pulse}$	135	A
Reverse Diode dv/dt		dv/dt	50	V/ns
Thermal Resistance, Junction-to-Case		R_{thJC}	0.4	$^{\circ}\text{C/W}$
Thermal Resistance, Junction-to-Ambient		R_{thJA}	62	$^{\circ}\text{C/W}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	600	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=600V, V_{GS}=0V, T_J = 25^{\circ}C$	-	-	1	μA
		$V_{DS}= 600V, V_{GS} = 0V, T_J= 150^{\circ}C$	-	-	5000	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30V$	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.5	-	4.5	V
Drain-Source On-State-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 22.5A$	-	0.055	0.07	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{GS} = 0V,$ $V_{DS} = 100V,$ $f = 1.0MHz$	-	4702	-	pF
Output Capacitance	C_{oss}		-	123.5	-	pF
Reverse Transfer Capacitance	C_{rss}		-	3.52	-	pF
Total Gate Charge	Q_g	$V_{DD} = 480V, I_D = 45A,$ $V_{GS} = 10V$	-	40.2	-	nC
Gate-Source Charge	Q_{gs}		-	7.8	-	nC
Gate-Drain Charge	Q_{gd}		-	16.7	-	nC
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = 400V, I_D = 45A,$ $R_G = 25\Omega$	-	58.15	-	ns
Turn-on Rise Time	t_r		-	69.5	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	134.9	-	ns
Turn-off Fall Time	t_f		-	87.85	-	ns
Drain-source body diode characteristics						
Body Diode Voltage	V_{SD}	$T_J = 25^{\circ}C, I_{SD} = 22.5A, V_{GS} = 0V$	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	$V_R = 400V, I_S=22.5A,$ $di_F/dt = 100A/\mu s$	-	171.2	-	ns
Reverse Recovery Charge	Q_{rr}		-	1.48	-	μC
Peak Reverse Recovery Current	I_{rrm}		-	16	-	A

■ TYPICAL CHARACTERISTICS

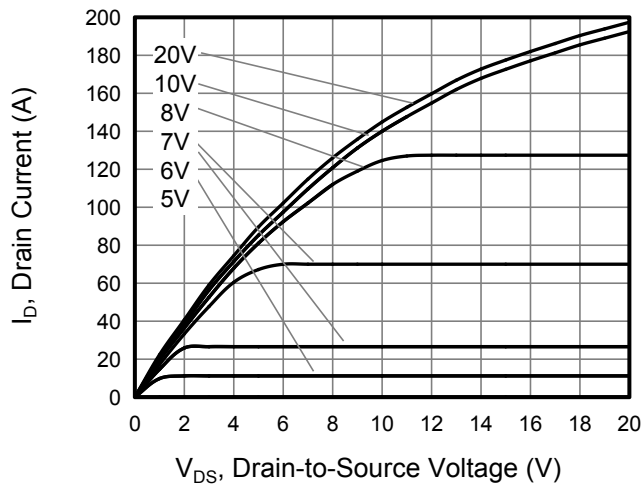


Figure 1: Output characteristics

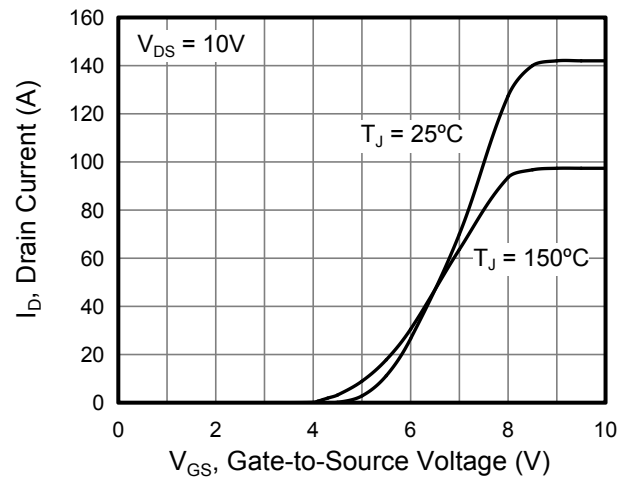


Figure 2: Transfer characteristics

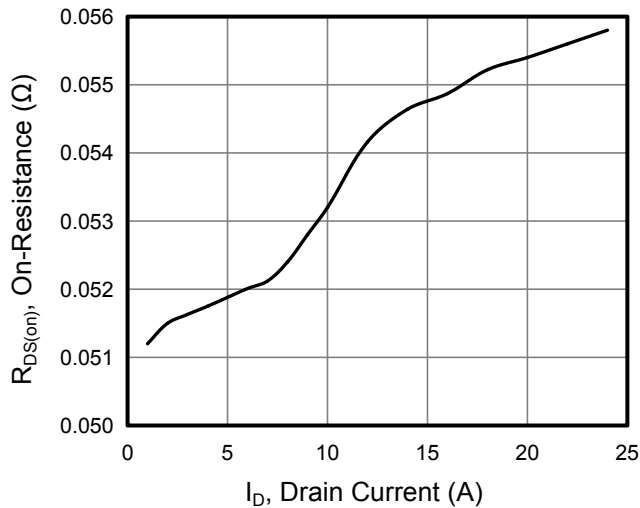


Figure 3: On-resistance vs. drain current

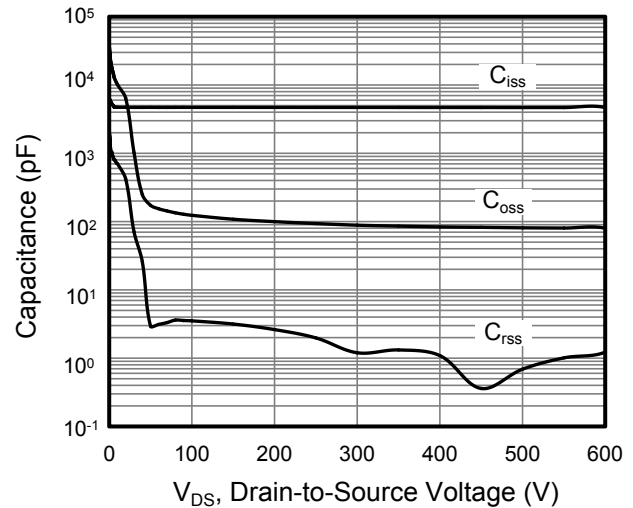


Figure 4: Capacitance

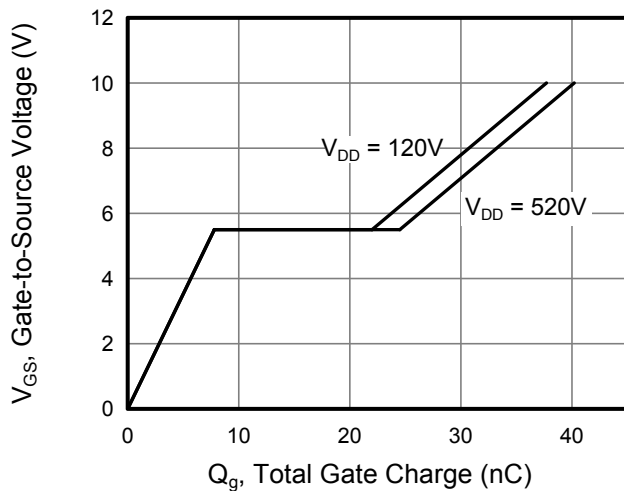


Figure 5: Gate charge

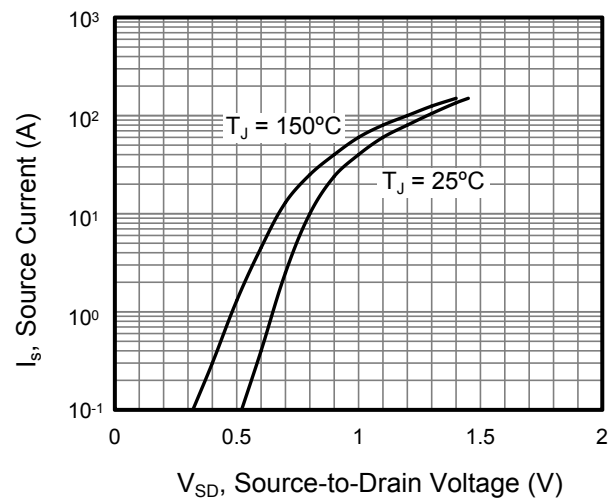
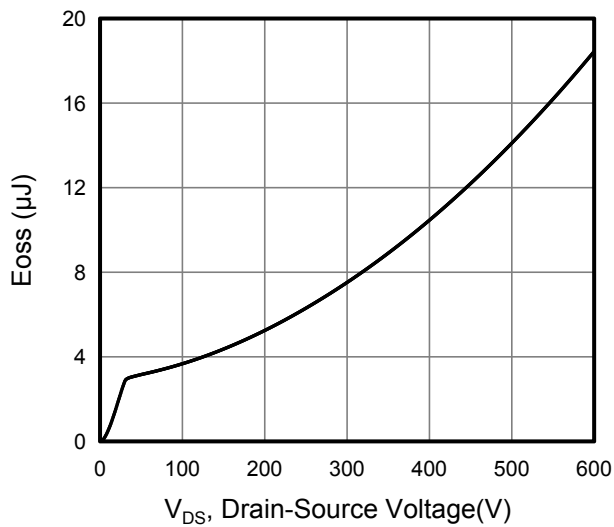
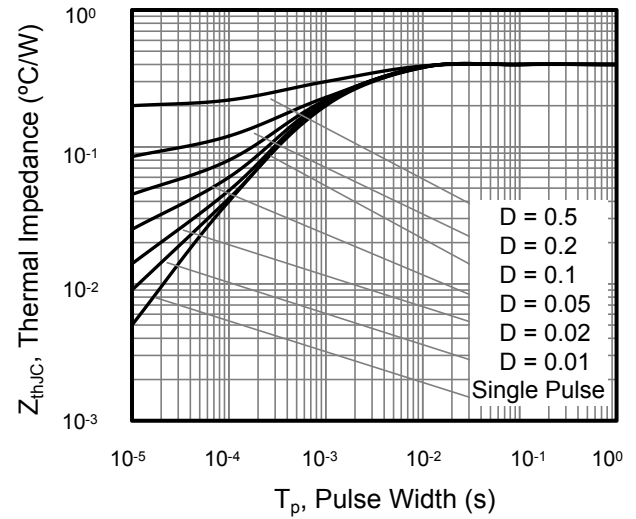
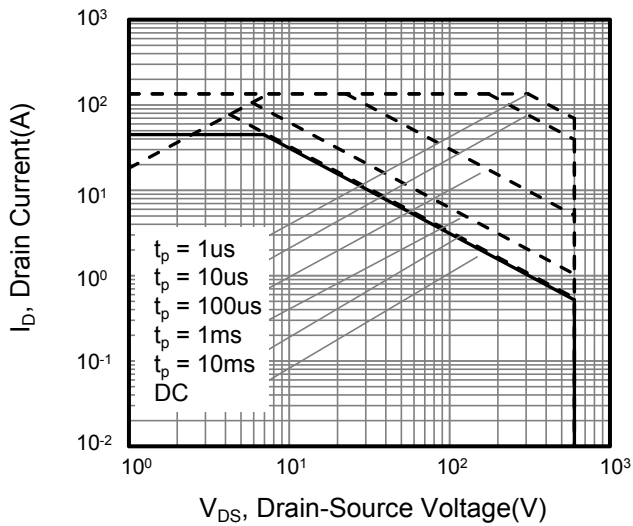
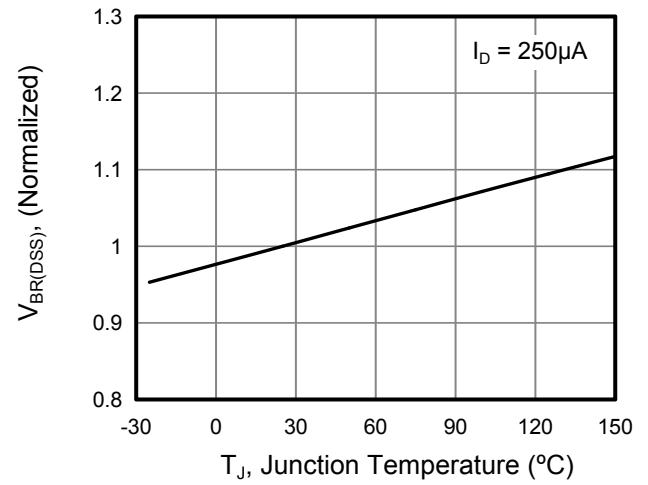
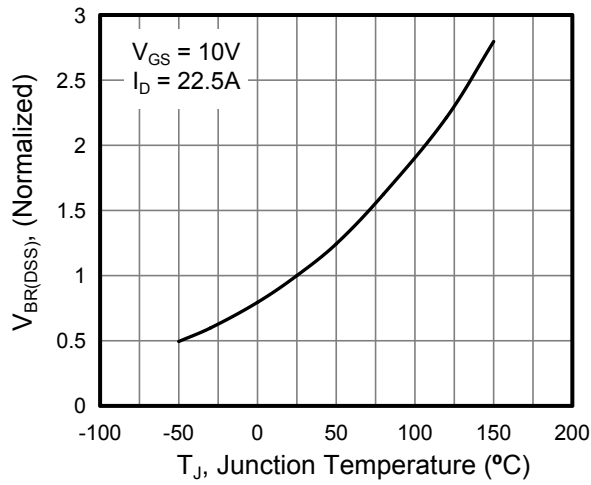


Figure 6: Body diode forward voltage

■ TYPICAL CHARACTERISTICS(Cont.)



■ TO-247S PACKAGE OUTLINE DIMENSIONS

