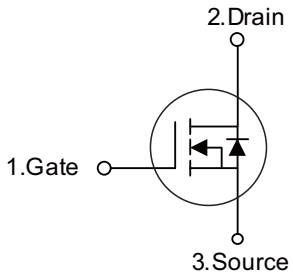
■ PRODUCT CHARACTERISTICS

VDSS	60V
R_{DS}(on)Typ(@V_{GS} =10 V)	6.7mΩ
R_{DS}(on)Typ(@V_{GS} =4.5 V)	8.2mΩ
ID	90A

Symbol



■ FEATURES

* Extremely low on-resistance $R_{DS(ON)}$
* Excellent Q_g X $R_{DS(ON)}$ product

■ APPLICATIONS

* Motor control and drive
* Battery management
* ups

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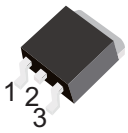

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■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT90N06A	TO-220	50 pieces/Tube
N/A	MOT90N06E	TO-263	800pieces /Reel

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	90	A
Drain Current-Continuous(Tc=100℃)	I_D	57	A
Pulsed Drain Current	I_{DM}	360	A
Maximum Power Dissipation	P_D	125	W
Thermal resistance,junction-case	$R_{\theta JC}$	1.0	℃/W
Single pulse avalanche energy	E_{AS}	300	mJ
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	-	2.5	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V	-	-	1	μA
		125°C	-	-	30	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=30A	-	6.7	8	mΩ
		V_{GS}=4.5V, I_D=20A	-	8.2	9.8	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=5A	10	-	-	S
Dynamic characteristics						
Input Capacitance	C_{lss}	V_{DS}=25V,V_{GS}=0V, F=1.0MHz	-	6940	-	PF
Output Capacitance	C_{oss}		-	269	-	PF
Reverse Transfer Capacitance	C_{rss}		-	206	-	PF
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=30V, V_{GS}=10V I_D=25A	-	16.5	-	nS
Turn-on Rise Time	t_r		-	170	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	464	-	nS
Turn-Off Fall Time	t_f		-	140	-	nS
Gate resistance	R_g	V_{DS}=0V,V_{GS}=0V, F=1.0MHz	-	2.95	-	Ω
Gate charge characteristics						
Total Gate Charge	Q_g	I_D=25A,V_{DD}=48V,V_{GS}=10V	-	11.7	-	nC
Gate-Source Charge	Q_{gs}		-	13.1	-	nC
Gate-Drain Charge	Q_{gd}		-	69	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=20A	-	-	1.2	V
Diode Forward Current	I_S		-	-	90	A
Reverse Recovery Time	t_{rr}	I_F = 25A di/dt = 100A/μs	-	26.8	-	nS
Reverse Recovery Charge	Qrr		-	29	-	nC

■ TYPICAL CHARACTERISTICS

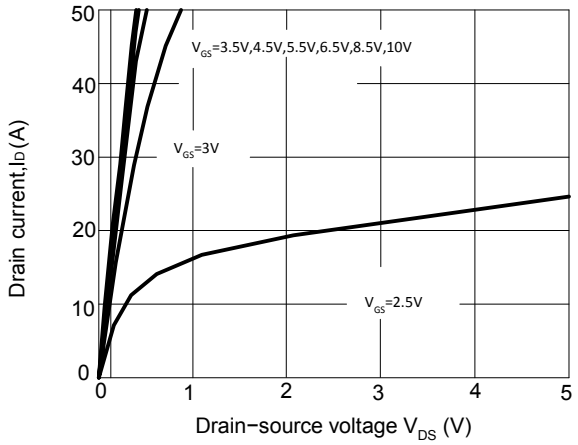


Figure 1. Typ. Output Characteristics

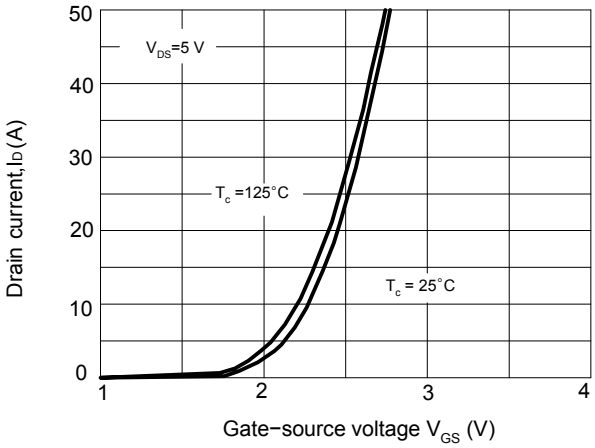


Figure 2. Transfer Characteristics

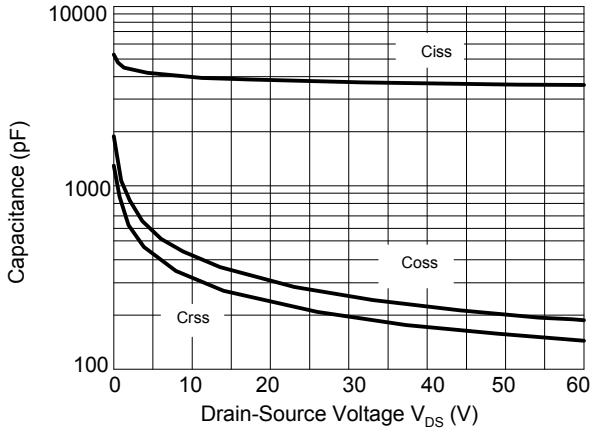


Figure 3. Capacitance Characteristics

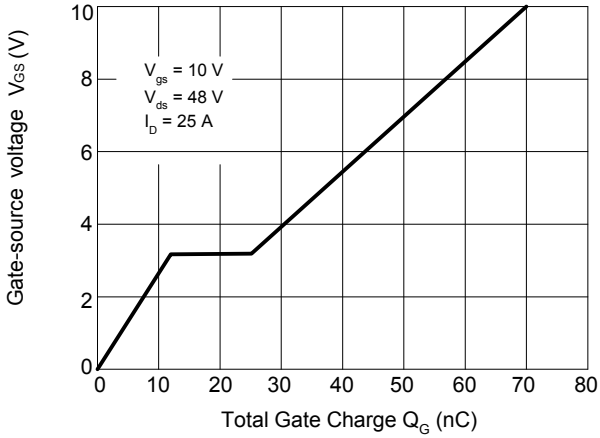


Figure 4. Gate Charge Waveform

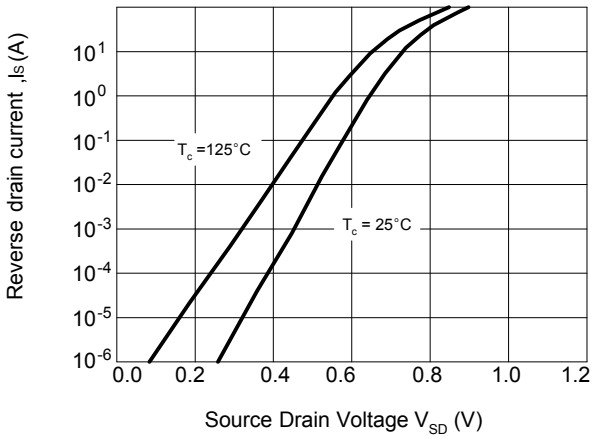


Figure 5. Body-Diode Characteristics

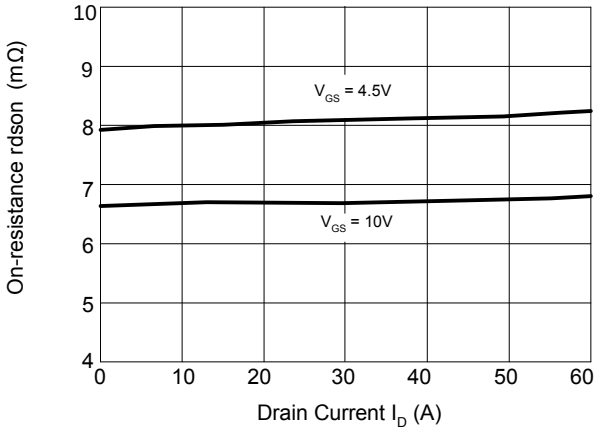


Figure 6. Rdson-Drain Current

■ TYPICAL CHARACTERISTICS(Cont.)

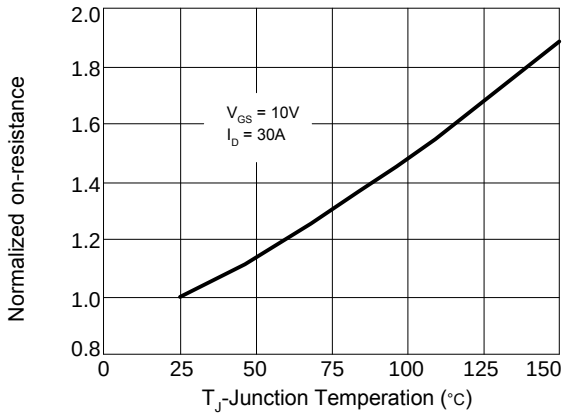


Figure 7. Rdson-Junction Temperature

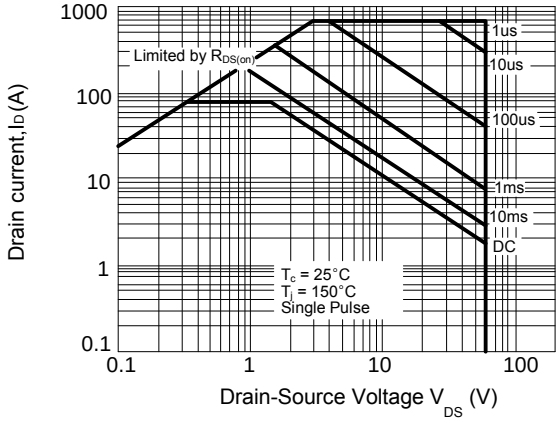
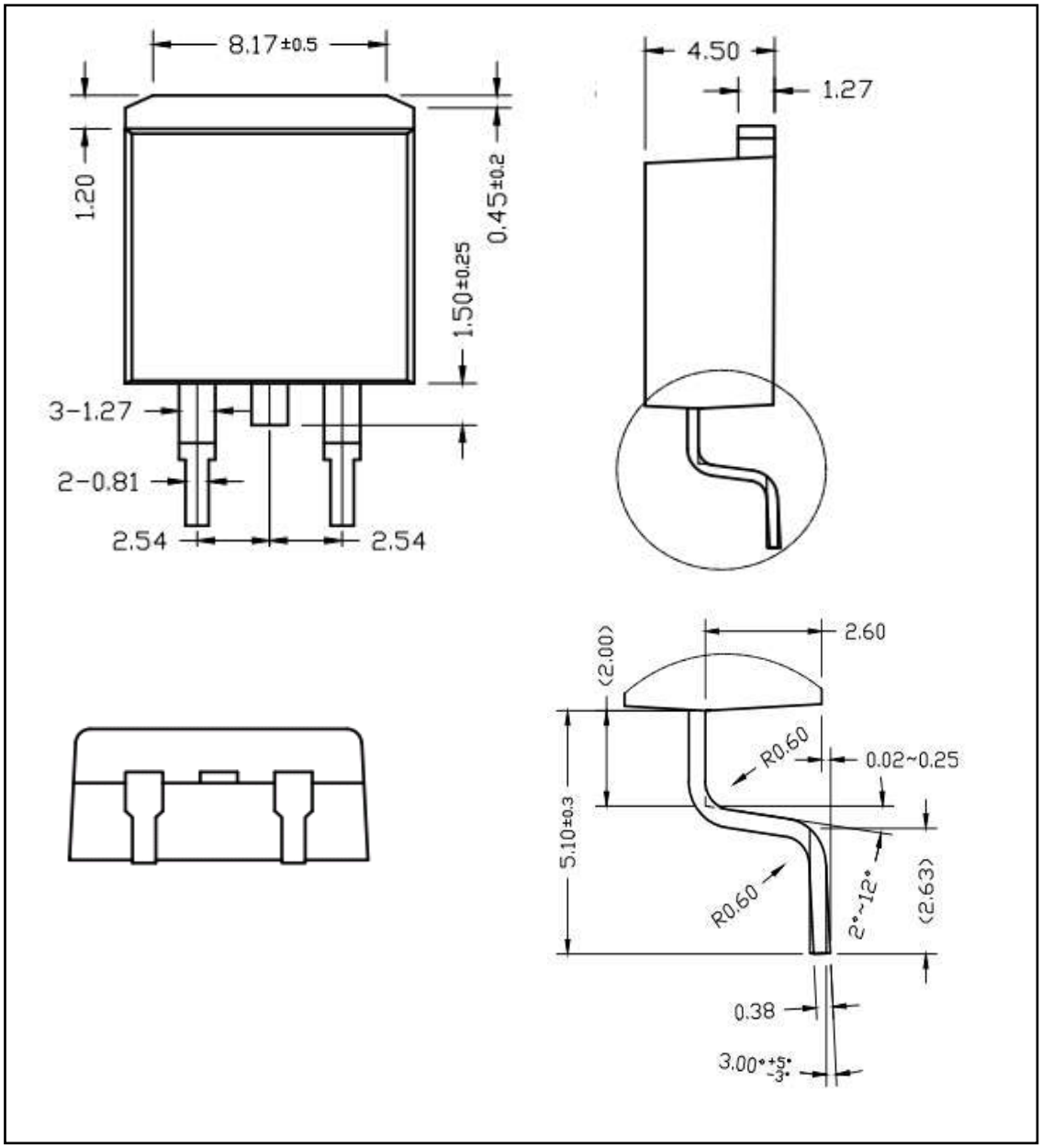


Figure 8. Maximum Safe Operating Area

■ TO-263 PACKAGE OUTLINE DIMENSIONS



■ TO-220 PACKAGE OUTLINE DIMENSIONS