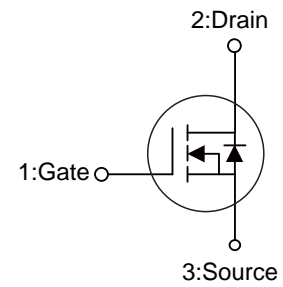


■ PRODUCT CHARACTERISTICS

$V_{DSS}$	60V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$ )	8m $\Omega$
$R_{DS(ON)}$ Typ(@ $V_{GS}=4.5V$ )	10m $\Omega$
ID	50A

Symbol



■ APPLICATIONS

- Portable Equipment and Battery Powered systems.
- Power Management in Notebook Computer

■ FEATURES

- Lower  $R_{DS(ON)}$  to Minimize Conduction Losses
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT6180C	TO-251	70 pieces/Tube
N/A	MOT6180D	TO-252	2500 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS ( $T_J=25^\circ C$  Unless Otherwise Noted)

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain-Source Voltage	$V_{DSS}$	60	V	
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V	
Drain Current	$I_D$	$T_C=25^\circ C$	50	A
		$T_C=100^\circ C$	39	A
Plused Drain Current	$I_{DM}$	200	A	
Avalanche Energy	$E_{AS}$	350	mJ	
Power Dissipation	$P_D$	60	W	
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.1	$^\circ C/W$	
Junction Temperature	$T_J$	+150	$^\circ C$	
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^\circ C$	

**■ ELECTRICAL CHARACTERISTICS (T =25°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	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.8	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=25A$	-	8	9	m $\Omega$
		$V_{GS}=4.5V, I_D=25A$	-	10	12	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=25A$	10	-	-	S
Dynamic characteristics						
Input Capacitance	$C_{iss}$	$V_{DS}=20V, V_{GS}=0V,$ $F=1.0MHz$	-	1100	-	PF
Output Capacitance	$C_{oss}$		-	360	-	PF
Reverse Transfer Capacitance	$C_{rss}$		-	19.2	-	PF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=25A$ $V_{GS}=10V, R_G=1.6\Omega$	-	8	-	nS
Turn-on Rise Time	$t_r$		-	2	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	29	-	nS
Turn-Off Fall Time	$t_f$		-	4	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=30V, I_D=25A,$ $V_{GS}=10V$	-	34.8	-	nC
Gate-Source Charge	$Q_{gs}$		-	7	-	nC
Gate-Drain Charge	$Q_{gd}$		-	5.3	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=25A$	-	-	1.2	V
Diode Forward Current	$I_S$		-	-	50	A
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ C, I_F = 25A$ $di/dt = 100A/\mu s$	-	38	-	nS
Reverse Recovery Charge	$Q_{rr}$		-	48	-	nC

■ TYPICAL CHARACTERISTICS

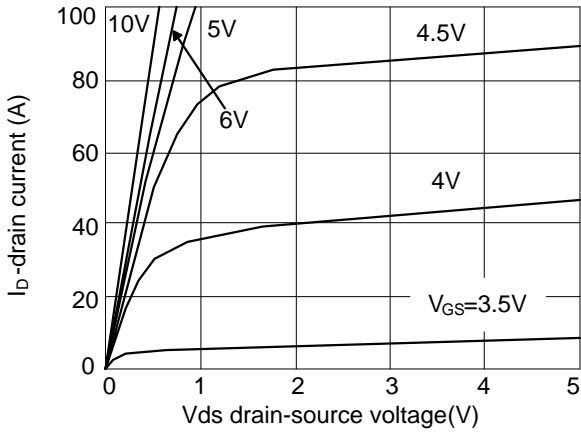


Figure 1 Output characteristics

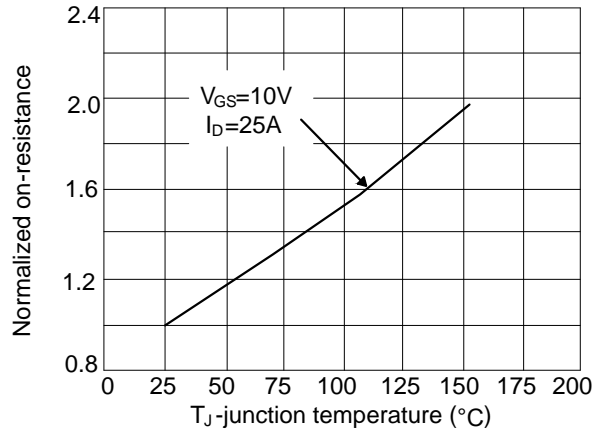


Figure 2  $R_{ds(j)}$ -junction temperature

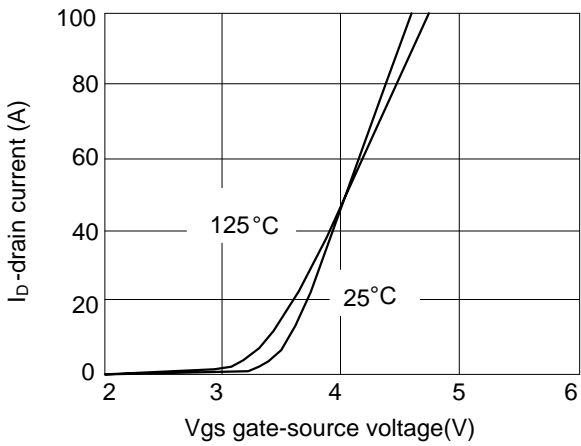


Figure 3 Transfer characteristics

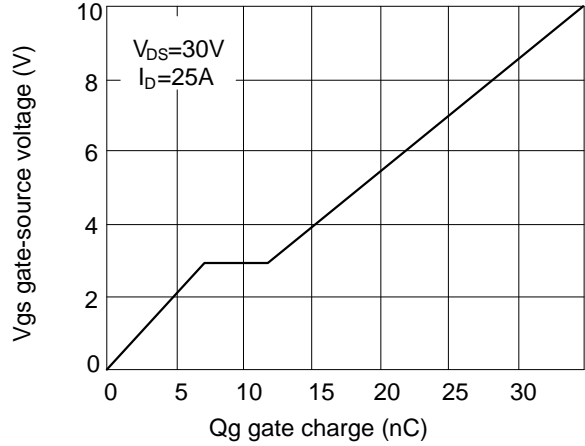


Figure 4 Gate charge

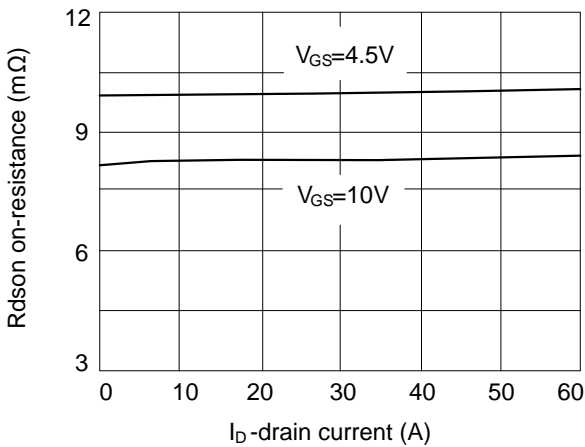


Figure 5  $R_{ds(on)}$ -drain current

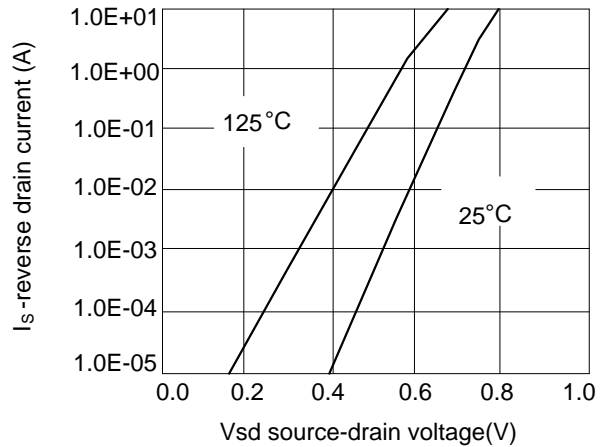


Figure 6 Source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

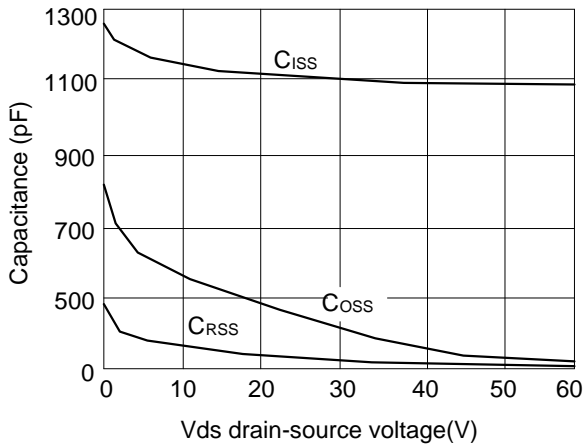


Figure 7 Capacitance vs vds

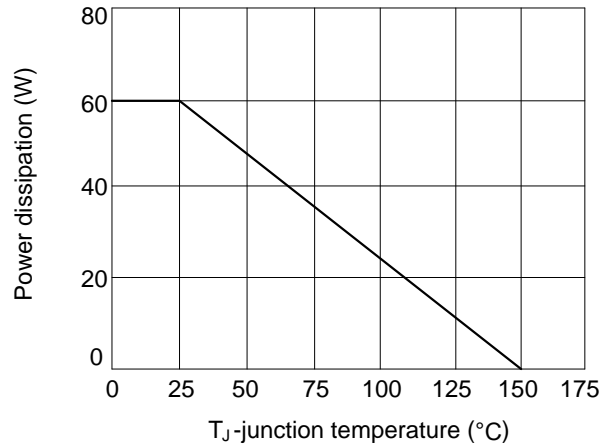


Figure 8 Power de-rating

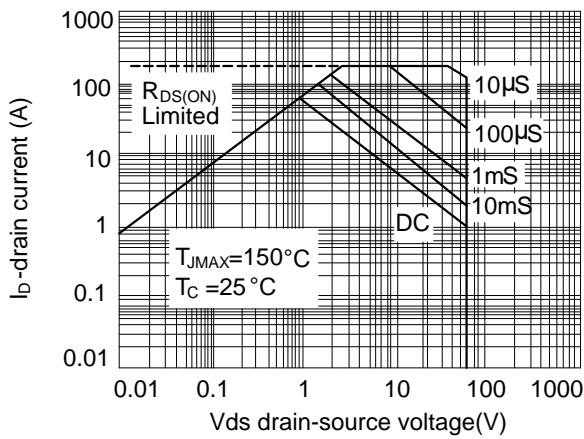


Figure 9 Safe operation area

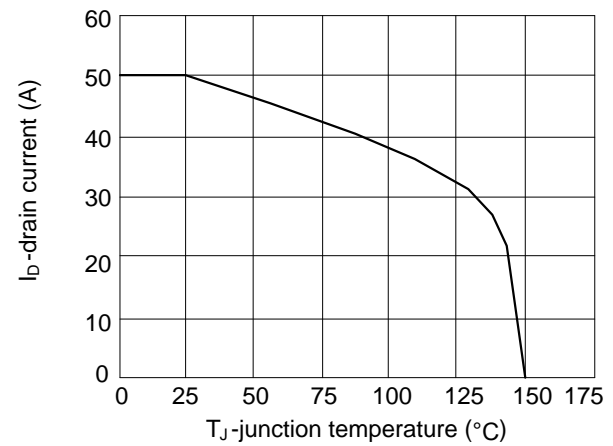
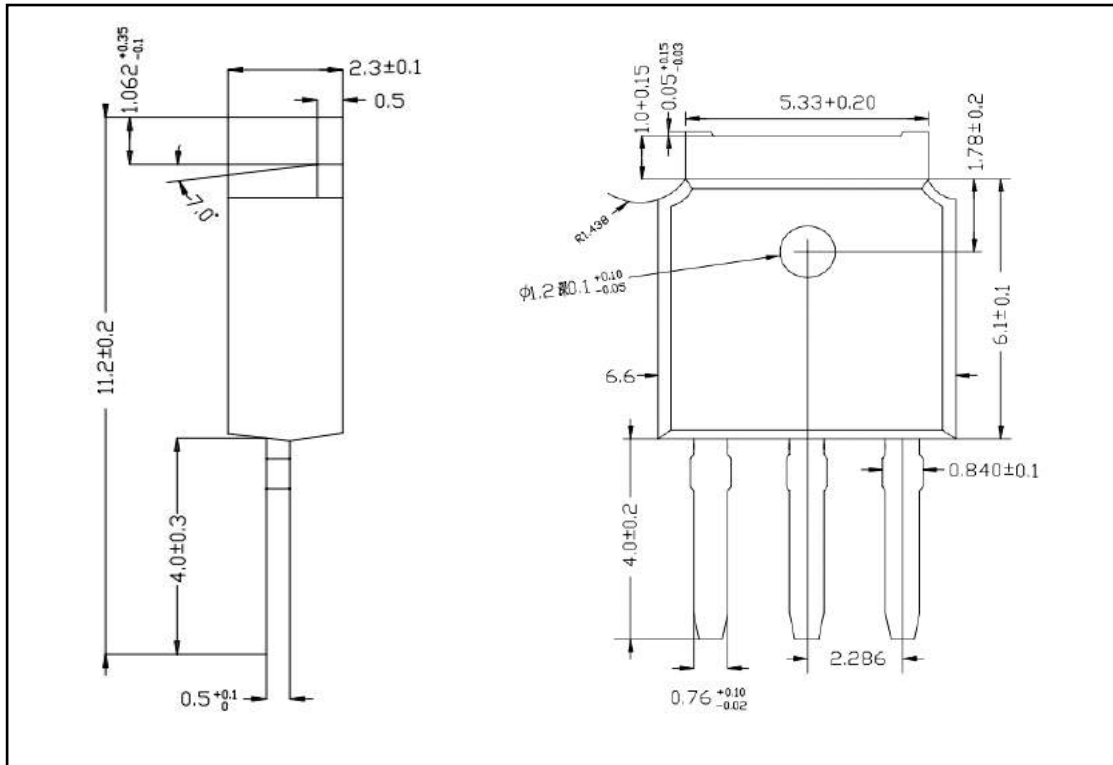
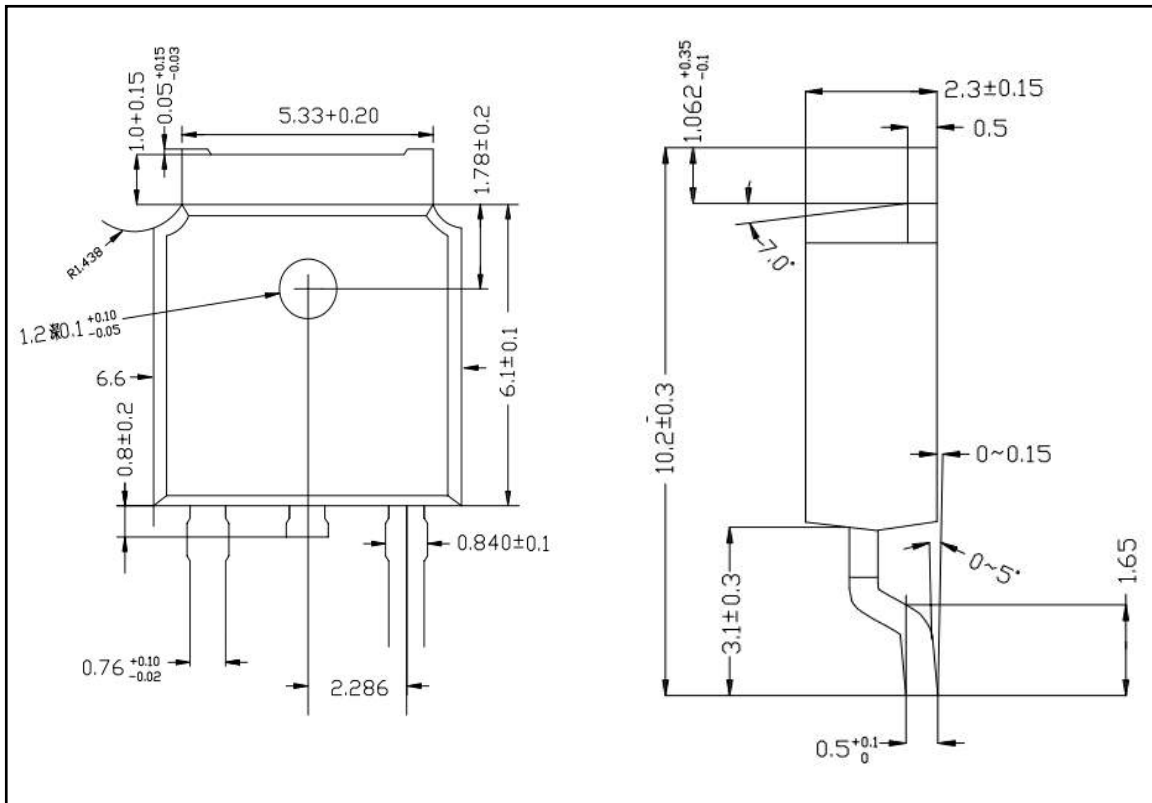


Figure 10 Current de-rating

■ TO-251-3L PACKAGE OUTLINE DIMENSIONS



■ TO-252-2L PACKAGE OUTLINE DIMENSIONS



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