

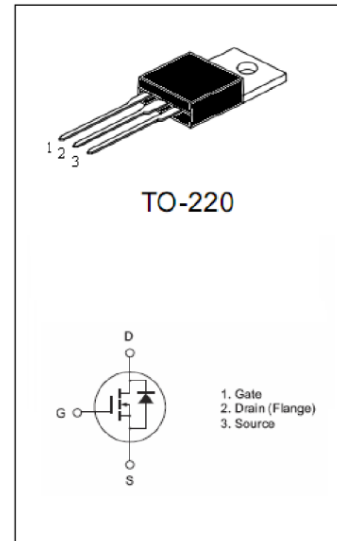
## MOSFET

### Features

- 80V,80A N-Channel MOSFET
- $R_{dson} < 7.5 \text{ m}\Omega$  @VGS=10V
- High ruggedness
- Fast switching
- 100% avalanche tested
- Exceptional dv/dt capability

### Applications

- Switching application



### Absolute Maximum Ratings

Symbol	Parameter	Value	Units
$V_{DSS}$	Drain-Source Voltage	80	V
$V_{GS}$	Gate-Source Voltage	$\pm 25$	V
$I_D$	Continuous Drain Current ( $T_C=25^\circ\text{C}$ )	80	A
	Continuous Drain Current ( $T_C=100^\circ\text{C}$ )	75	A
$I_{DM}$	Pulsed Drain Current (Note 1)	300	A
EAS	Single Pulsed Avalanche Energy(Note 2)	800	mJ
$P_D$	Maximum Power Dissipation ( $T_C=25^\circ\text{C}$ )	150	W
	Maximum Power Dissipation ( $T_C=100^\circ\text{C}$ )	75	W
$T_J$	Operating Junction Temperature Range	-55 to +175	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +175	$^\circ\text{C}$

Note 1:Pulse width limited by safe operating area

Note 2:Starting  $T_J=25^\circ\text{C}$ ,  $I_D=40\text{A}$ ,  $V_{DD}=30\text{V}$ ,  $L=1\text{mH}$

### Thermal Characteristics

Symbol	Parameter	Max.	Units
$R_{thj-c}$	Thermal Resistance, Junction to case	0.5	$^\circ\text{C}/\text{W}$
$R_{thj-a}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C}/\text{W}$

**Electrical Characteristics** ( $T_C=25^\circ\text{C}$  unless otherwise noted )

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units	
$V_{(BR)DSS}$	Drain-source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	80	-	-	V	
$I_{DSS}$	Drain-source Leakage Current	$V_{DS}=80V, V_{GS}=0V$	-	-	1	$\mu A$	
$I_{GSS}$	Gate Leakage Current, Forward	$V_{GS}=25V, V_{DS}=0V$	-	-	100	nA	
	Gate Leakage Current, Reverse	$V_{GS}=-25V, V_{DS}=0V$	-	-	-100	nA	
$V_{GE(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	2	-	4	V	
$R_{DS(on)}$	Static drain-source on resistance	$V_{GS}=10V, I_D=40A$	-	6.2	7.5	m $\Omega$	
$Q_g$	Total Gate Charge	$V_{DD}=60V$ $V_{GS}=10V$ $I_D=80A$	-	81		nC	
$Q_{gs}$	Gate-source Charge		-	17.6		nC	
$Q_{gd}$	Gate-drain Charge		-	21		nC	
$C_{iss}$	Input Capacitance	$V_{DS}=25V$ $V_{GE}=0V$ $f=1\text{MHz}$	-	4000	-	pF	
$C_{oss}$	Output Capacitance		-	310	-	pF	
$C_{rss}$	Reverse Transfer Capacitance		-	280	-	pF	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=40V$ $R=24\Omega$ $I_D=1A$ $V_{GS}=10V$ $R_g=6\Omega$		56		ns	
$t_r$	Turn-on Rise Time			53		ns	
$t_{d(off)}$	Turn-off Delay Time			27		ns	
$t_f$	Turn-off Fall Time			65		ns	
$E_{on}$	Turn-on Switching Loss				0.61		$\mu J$
$E_{off}$	Turn-off Switching Loss				0.46		$\mu J$
$t_{rr}$	Reverse Recovery Time		$I_{SD}=30A$ $di/dt=100A/\mu s$		65		ns
$Q_{rr}$	Reverse Recovery Charge				120		nC
$I_{SD}$	Source-drain current				80	A	
$I_{SDM}$	Source-drain current(pulsed)				300	A	
$V_{SD}$	Forward on voltage	$I_{SD}=80A, V_{GS}=0V$			1.2	V	

## Typical Performance Characteristics

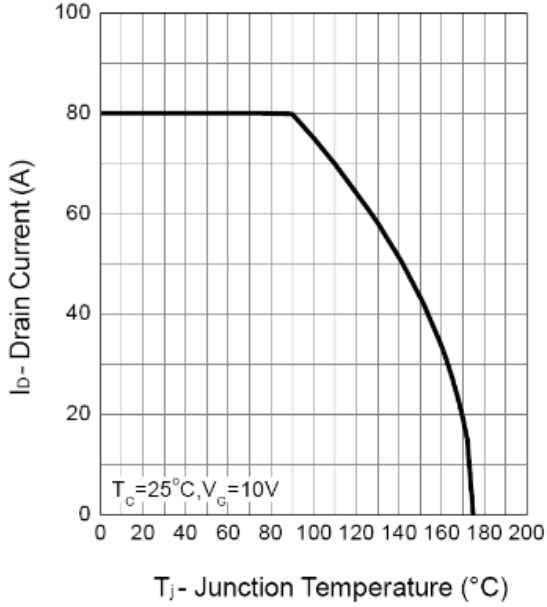


Figure1: maximum DC drain current  
 VS. case temperature

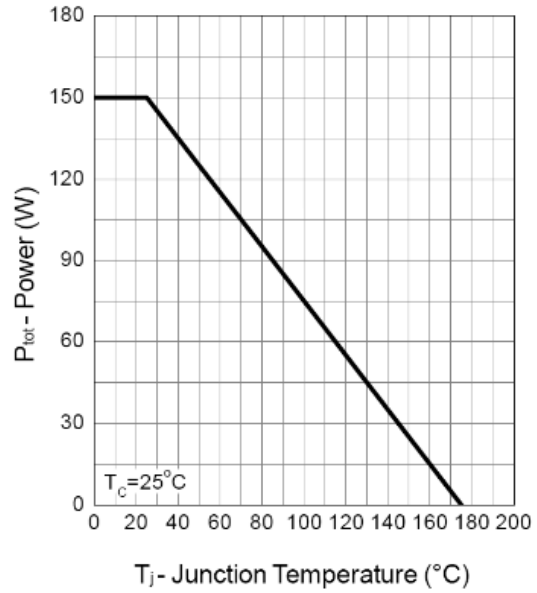


Figure2: power dissipation VS. case temperature

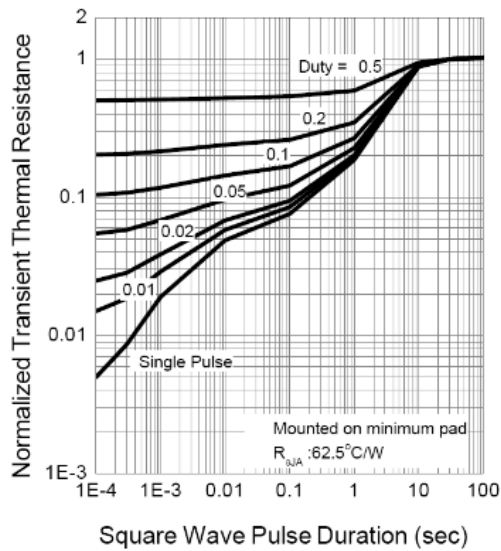


Figure3: normalized transient thermal impedance  
 , junction-to-case

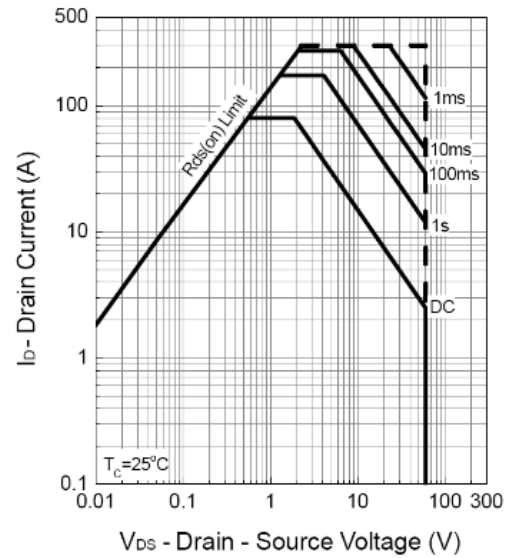


Figure4: SOA,  $T_C=25^\circ\text{C}$ ,  $T_J \leq 75^\circ\text{C}$

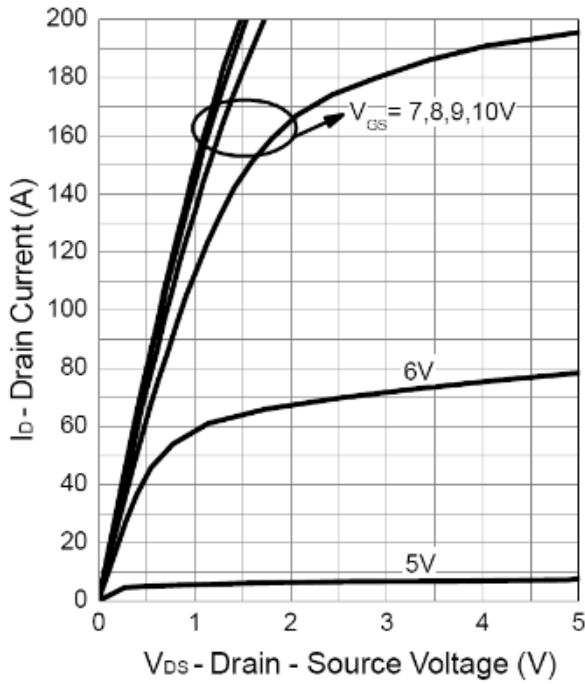


Figure5: output characteristics,  
 $T_J=25^{\circ}C$ ;  $t_p=300\mu s$

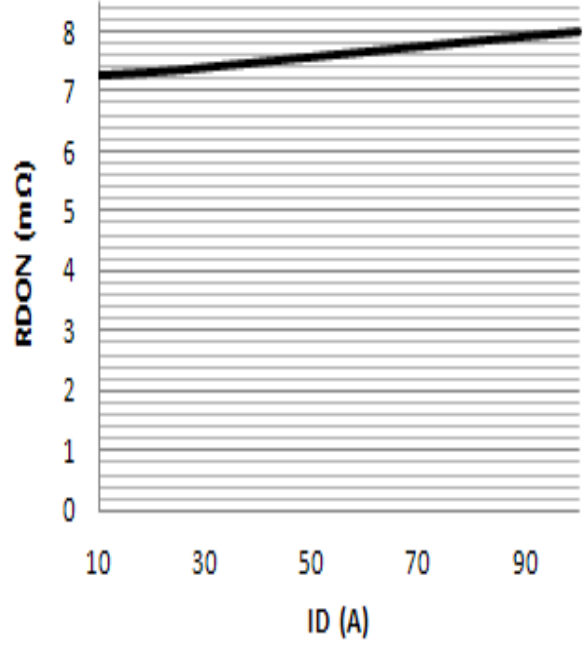


Figure6:  $R_{don}$  vs  $I_D$ ,  $V_{GS}=10V$ ,  $T_J=25^{\circ}C$

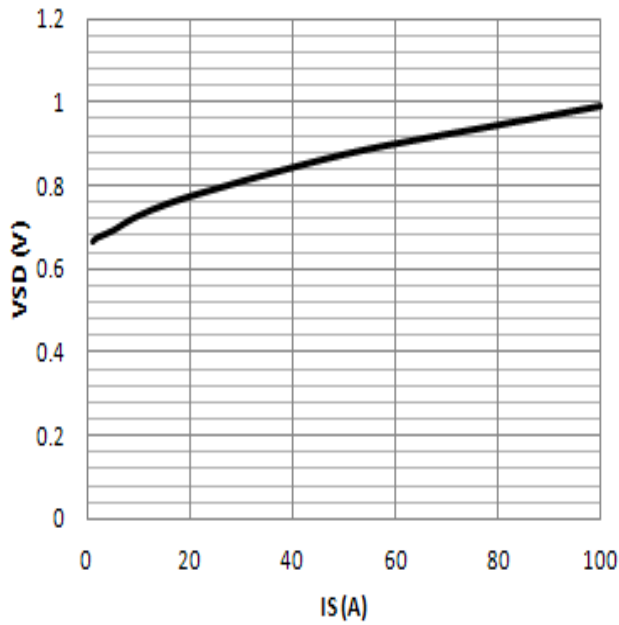


Figure7:  $V_{SD}$  vs  $I_S$ ,  $T_J=25^{\circ}C$

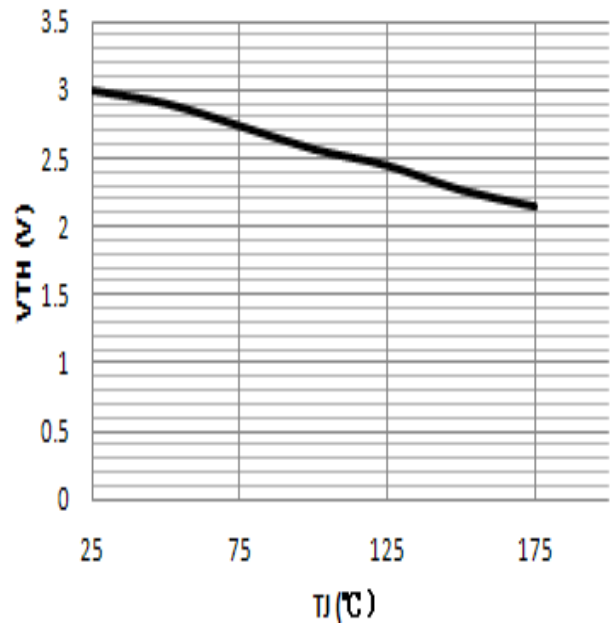


Figure8:  $V_{TH}$  vs  $T_J$

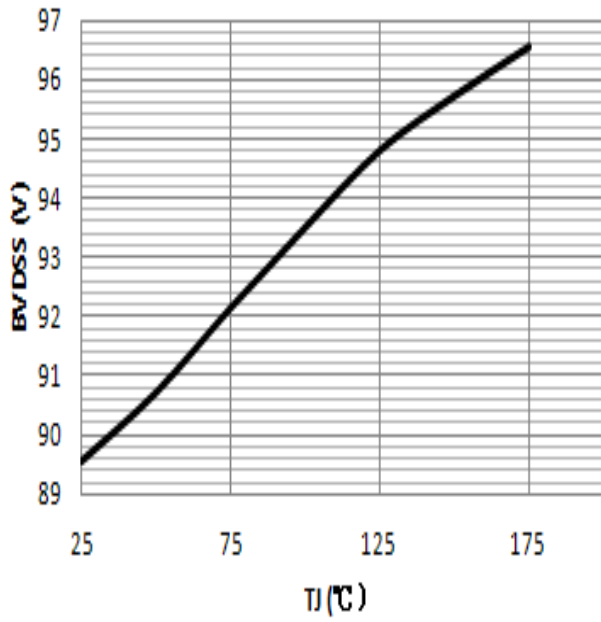


Figure9: BVDSS vs TJ ,ID=250uA

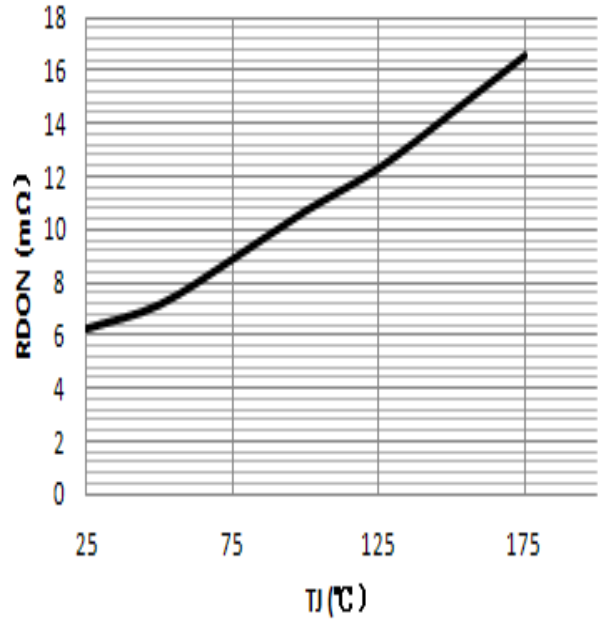


Figure10: RDON vs TJ, ID=40A, VGS=10V