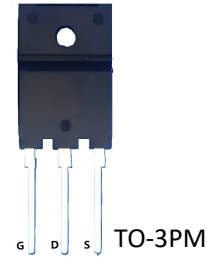


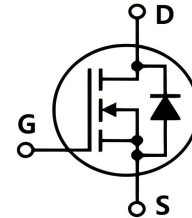
Features

- 100% avalanche tested
- Very low intrinsic capacitances
- High speed switching
- Very low on-resistance



Applications

- UPS
- Switching applications



Electrical ratings($T_C=25^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-source voltage ($V_{GS} = 0$)	V_{DSS}	1500	V
Transient Gate- source voltage	V_{GSM}	± 30	
Continuous Gate- source voltage(DC)	V_{GSS}	± 20	
Drain current (continuous) at $T_C = 25^{\circ}\text{C}$	I_D	5	A
Drain current (continuous) at $T_C = 100^{\circ}\text{C}$		3	
Drain current - pulse(note1)	I_{DM}	5	
Total dissipation at $T_C = 25^{\circ}\text{C}$	P_{TOT}	60	W
Derating factor		0.5	W/ $^{\circ}\text{C}$
Operating junction temperature	T_J	-55 to 150	$^{\circ}\text{C}$
Storage temperature	T_{stg}		
Maximum lead temperature for soldering purpose	T_L	300	

Avalanche characteristics

Parameter	Symbol	Max value	Unit
Avalanche current, repetitive or not-repetitive (note 1)	I_{AR}	5	A
Single pulse avalanche energy (note 2)	E_{AS}	460	mJ

Electrical Characteristics ($T_J = 25^{\circ}\text{C}$ unless otherwise specified)

On /off states						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 250\mu\text{A}$, $V_{GS} = 0$	1500			V

Zero gate voltage drain current ($V_{GS} = 0$)	I_{DSS}	$V_{DS} = \text{Max rating}$ $V_{DS}=\text{Max rating}, T_C=125\text{ }^{\circ}\text{C}$			10 500	μA
Gate-body leakage current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 20\text{ V}$			± 1000	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	2	3.5	5	V
Static drain-source on resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 1\text{A}(\text{note } 3)$		5.5	7.2	Ω
Transconductance	g_{fs}	$V_{DS}=10\text{V}, I_D=2\text{A}(\text{note } 3)$	-	4.6	-	S
Dynamic						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Input capacitance	C_{iss}	$V_{DS}=25\text{V}, f=1\text{MHz},$ $V_{GS}=0\text{V}$		824		pF
Output capacitance	C_{oss}			127		
Reverse transfer capacitance	C_{rss}			29		
Total gate charge	Q_g	$V_{DD}=1200\text{V}, I_D=3\text{A}$ $V_{GS}=10\text{V}(\text{note } 4,5)$		25		nC
Gate-source charge	Q_{gs}			4		
Gate-drain charge	Q_{gd}			15		
Switching times						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 750\text{V}, I_D = 3\text{A},$ $R_G = 22\Omega, V_{GS} = 10\text{ V}(\text{note } 4,5)$		30		ns
Rise time	t_r			52		
Turn-off-delay time	$t_{d(off)}$			123		
Fall time	t_f			105		
Source drain diode						
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Source-drain current	I_{SD}			2.8		A
Source-drain current (pulsed)	I_{SDM}			10		
Forward on voltage	V_{SD}	$I_{SD}= 1\text{A}, V_{GS}= 0$		0.74	1.2	V
Reverse recovery time	t_{rr}	$I_{SD}= 2.8\text{A},$ $di/dt= 100\text{A}/\mu\text{s}$ $V_{DD}= 60\text{ V}$		420		ns
Reverse recovery charge	Q_{rr}			2.6		μC
Reverse recovery current	I_{RRM}			11		A
Reverse recovery time	t_{rr}	$I_{SD}=2.8\text{A}, di/dt=100\text{A}/\mu\text{s}$ $V_{DD}= 60\text{V}$ $T_J=150^{\circ}\text{C}(\text{note } 3)$		540		nS
Reverse recovery charge	Q_{rr}			4		μC
Reverse recovery current	I_{RRM}			11.8		A

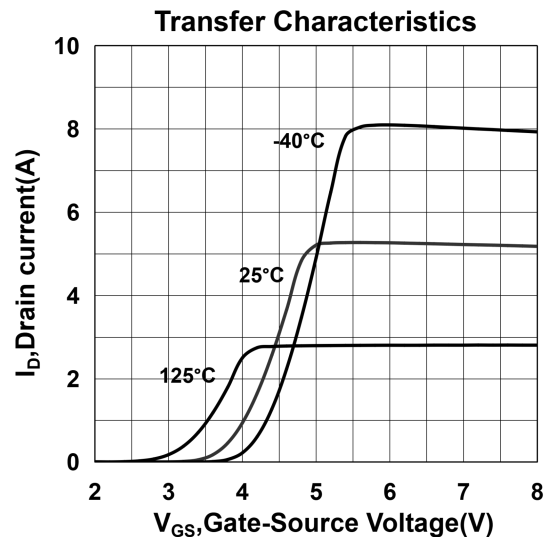
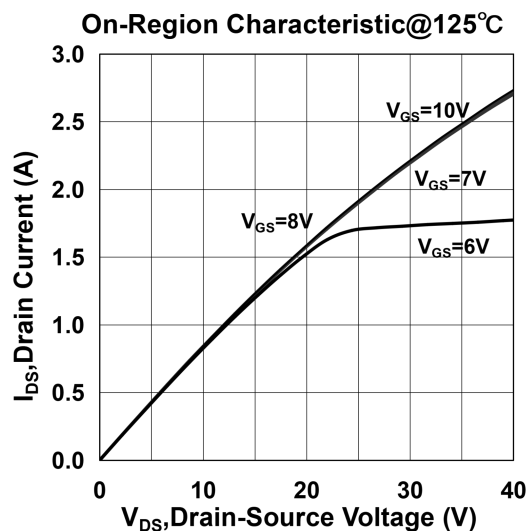
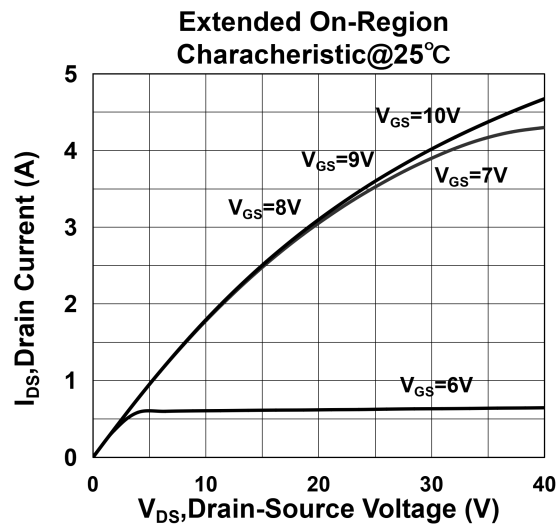
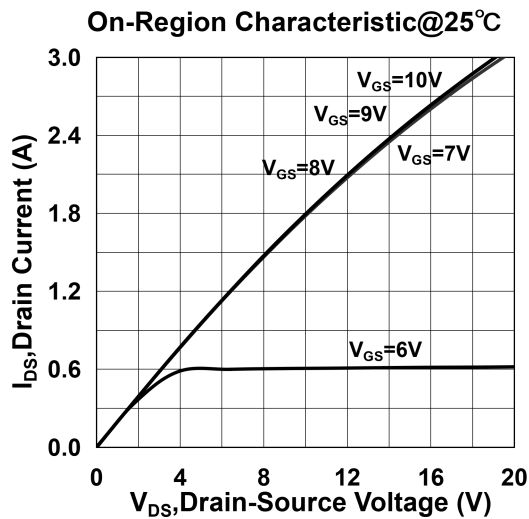
Thermal characteristics

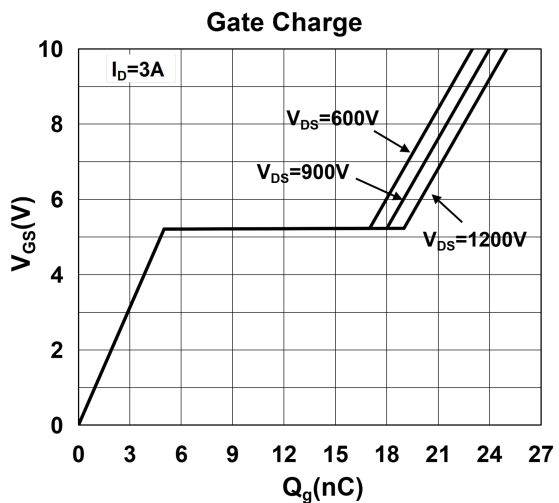
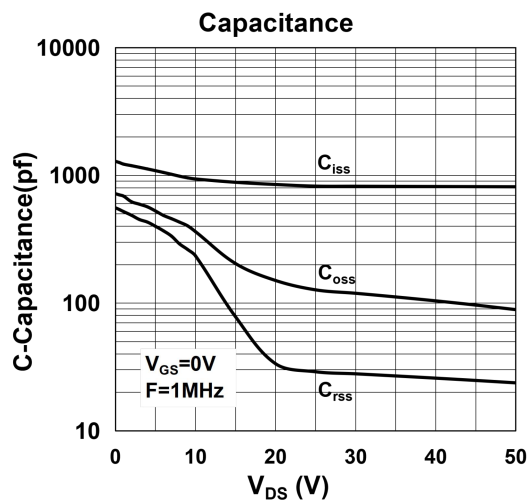
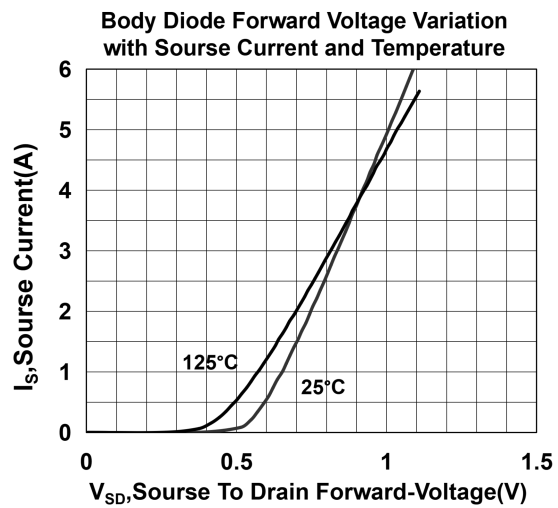
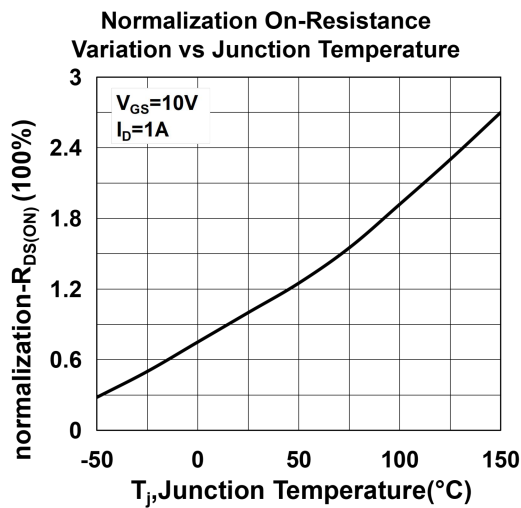
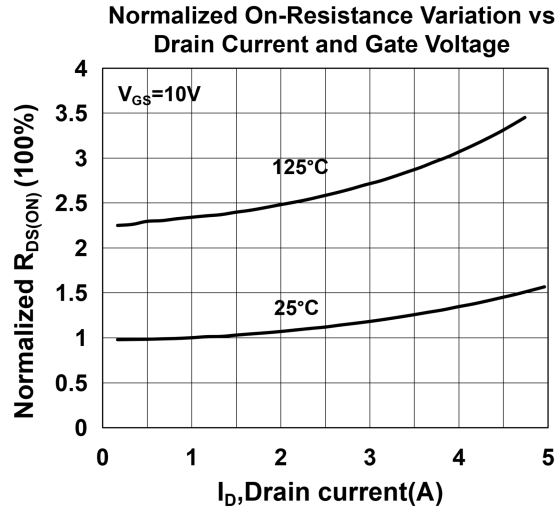
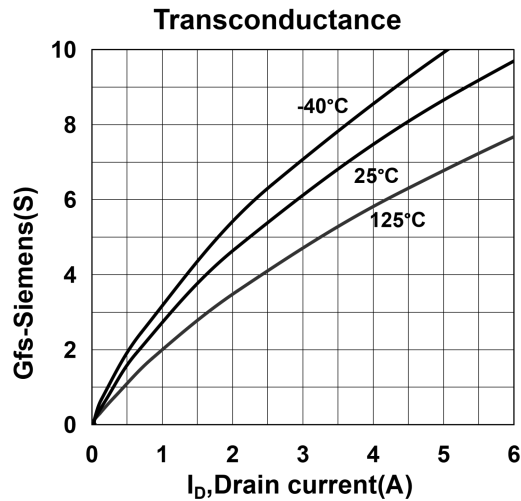
Parameter	Symbol	Min	Typ	Max	Unit
Thermal resistance junction-case	$R_{thj-case}$			2	$^{\circ}C/W$
Thermal resistance junction-ambient	$R_{thj-amb}$			50	

Notes:

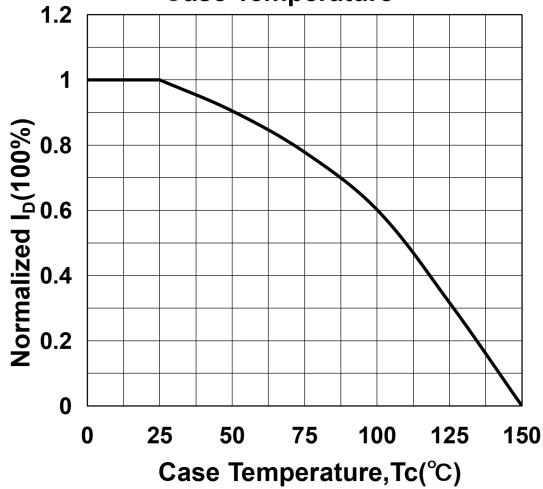
- 1: Pulse width limited by maximum junction temperature
- 2: $I_{AS}=5A$, $V_{DD}=50V$, $R_G=22\ \Omega$, Starting $T_J=25^{\circ}C$
- 3: $I_{SD} \leq 5A$, $di/dt \leq 300A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J=25^{\circ}C$
- 4: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
- 5: Essentially independent of operating temperature

Electrical characteristics

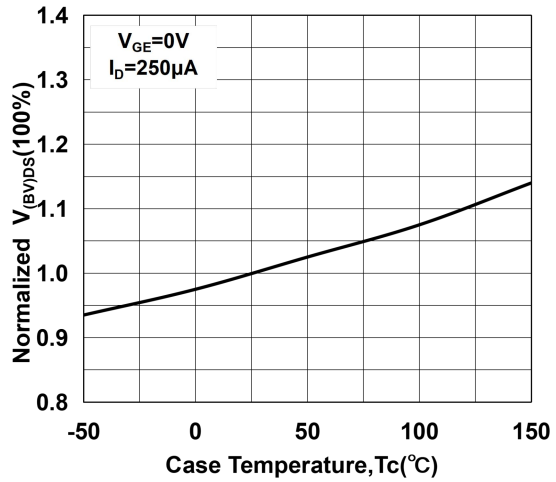




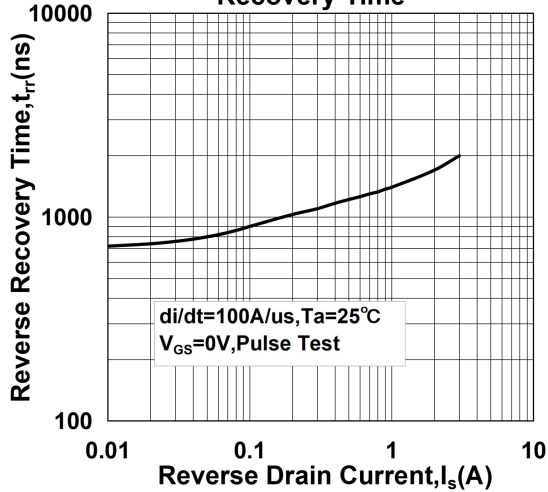
Maximum Drain Current vs Case Temperature



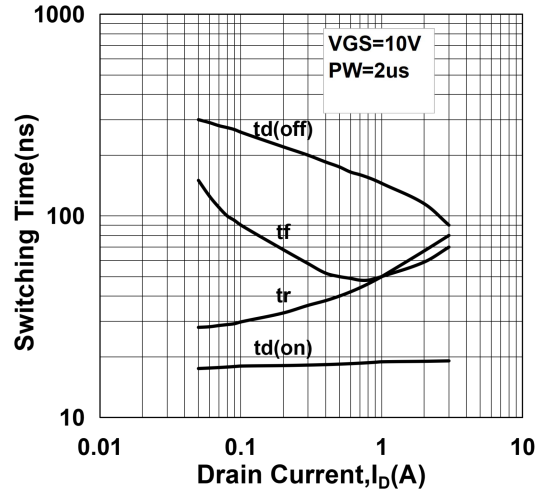
Normalized $V_{(BV)DS}$ vs temperature



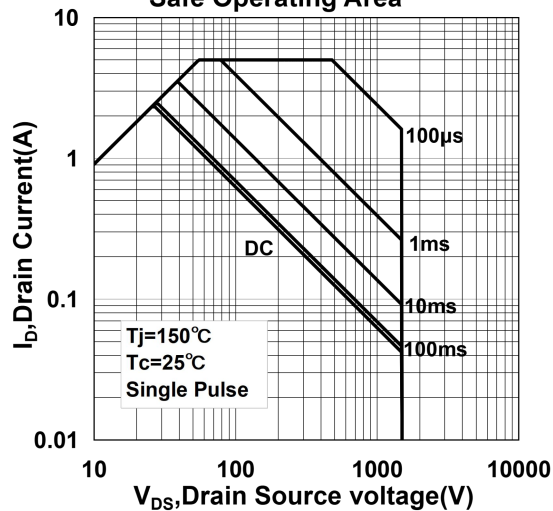
Body to Drain Diode Reverse Recovery Time



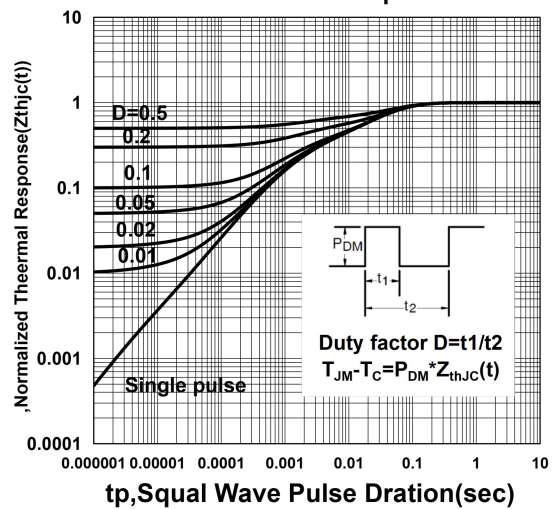
Switching Characteristics



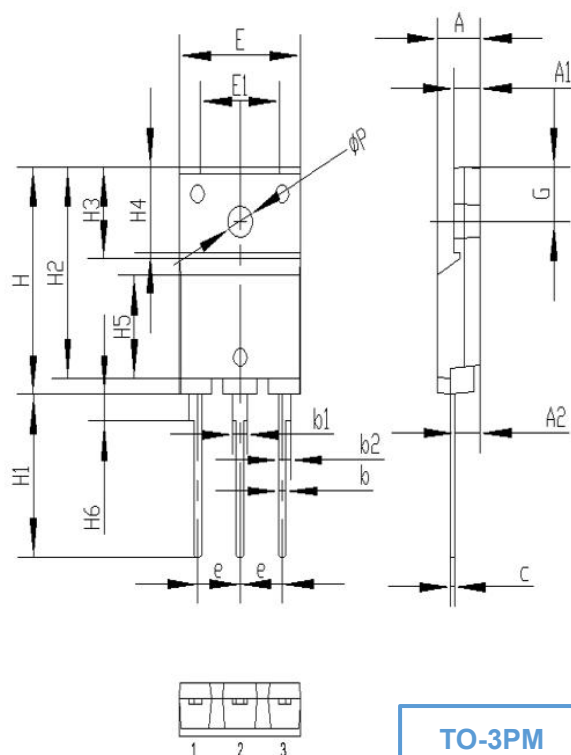
Safe Operating Area



Normalized Transient response Curve



Package outline dimension



Symbol	単位 mm		
	Min	Nom	Max
A	5.30	5.50	5.70
A1	3.30	3.50	3.70
A2	3.20	3.40	3.60
b	0.80	1.0	1.20
b1	1.80	2.00	2.20
b2	1.40	1.60	1.80
c	0.40	0.50	0.60
e	5.25	5.45	5.65
E	15.4	15.6	15.8
E1	10.0	10.2	10.4
H	22.8	23.0	23.2
H1	16.0	16.5	17.0
H2	21.2	21.4	21.6
H3	9.10	9.30	9.50
H4	8.55	8.75	8.95
H5	10.2	10.4	10.6
H6	2.55	2.70	2.85
G	5.3	5.5	5.7
ϕP	3.00	3.20	3.40