

MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

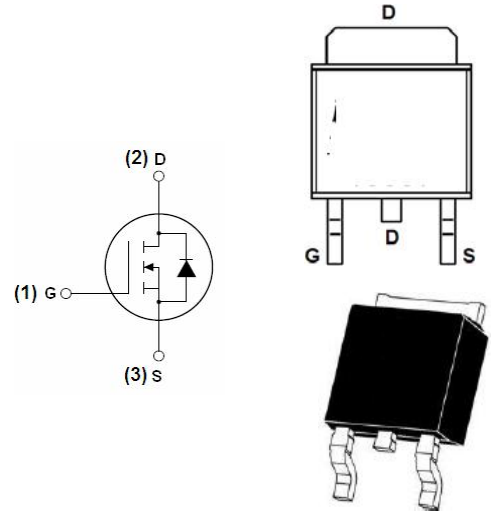
Product data sheet

FEATURE

- Excellent package for good heat dissipation
- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified

VBR:100V
RDS:70MR@10V
ID:15A

Schematic diagram



TO-252

MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D ^①	15	A
Pulsed Drain Current	I _{DM} ^②	60	A
Single Pulsed Avalanche Energy	E _{AS} ^③	49	mJ
Power Dissipation	P _D ^①	45	W
Thermal Resistance from Junction to Ambient	R _{θJA} ^⑥	100	°C/W
Thermal Resistance from Junction to Case	R _{θJC} ^①	2.78	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55~+150	°C

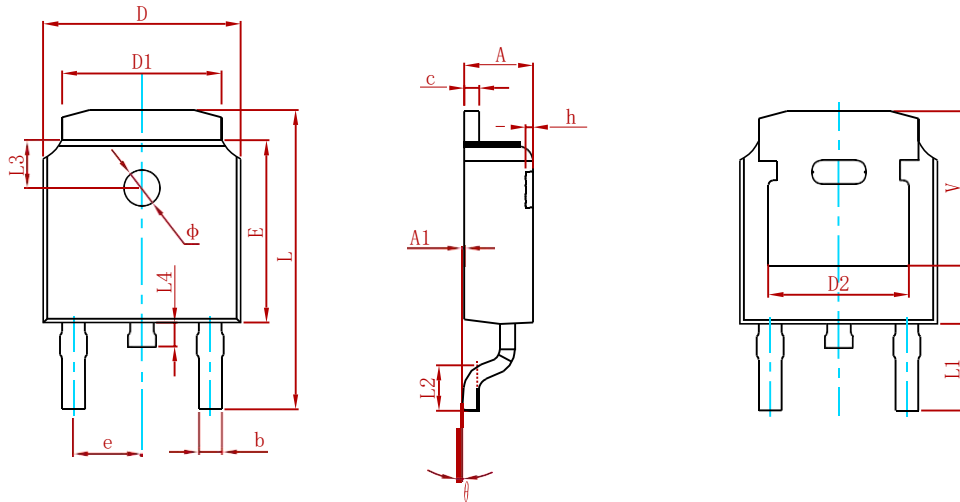
$T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 80V, V_{GS} = 0V$	$T_J = 25^\circ C$		1.0	μA
			$T_J = 125^\circ C$		100	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
On characteristics ^④						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	2.5	3.0	V
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 8A$		70	100	m Ω
Dynamic characteristics ^{④ ⑤}						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 100KHz$		773	1500	pF
Output capacitance	C_{oss}			46	92	
Reverse transfer capacitance	C_{rss}			43	90	
Gate resistance	R_g	$f = 1MHz$		1.5		Ω
Switching characteristics ^{④ ⑤}						
Total gate charge	Q_g	$V_{GS} = 10V, V_{DS} = 50V, I_D = 10A$		18	36	nC
Gate-source charge	Q_{gs}			2.8	5.6	
Gate-drain charge	Q_{gd}			7.4	14.8	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 25V, R_L = 5\Omega, V_{GS} = 10V, R_G = 1.0\Omega$		15		ns
Turn-on rise time	t_r			33		
Turn-off delay time	$t_{d(off)}$			41		
Turn-off fall time	t_f			6		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage	V_{SD} ^④	$V_{GS} = 0V, I_S = 8A$			1.2	V
Continuous drain-source diode forward current	I_S ^①				15	A
Pulsed drain-source diode forward current	I_{SM} ^②				60	A

Notes:

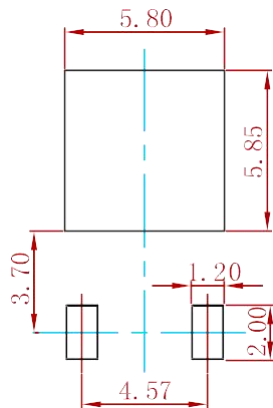
- $T_C=25^\circ C$ Limited only by maximum temperature allowed.
- $P_W \leq 10\mu s$, Duty cycle $\leq 1\%$.
- EAS condition: $V_{DD}=25V, V_{GS}=10V, L=0.5mH, R_g=25\Omega$ Starting $T_J = 25^\circ C$.
- Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production.
- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a=25^\circ C$.

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

Suggested Pad Layout



Note:
 1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
MS15N10	TO-252	2500

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